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ABSTRACT

This report documents the development of instructional objectives and accompanying measurement criteria for an elementary school art curriculum for grades 3-5. Results are from the three schools which participated in the study: an inner-city school with no special emphasis on art; a suburban school with much emphasis on art; and a transitional school with average art emphasis. The instruments used in Color Understanding and Drawing of Figures are described, as well as the criteria for evaluating the drawings. Graphs and charts present student performance in each phase of the assessment; several graphs depict the relationship between I.Q. based scores and actual scores. Photographic illustrations show acceptable, borderline, and unacceptable performance on the drawing of human figures. Grade level expectations are presented, based on the concept that children can learn to derive ideas from the real and imagined world. These expectations are grouped according to subject matter: people, animals, plants, buildings, vehicles, and machines. Instructional objectives and measurement criteria are presented. (NE)

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"Systems Approach to the Management of Educational Resources"

DEVELOPMENT OF LEARNING OUTCOMES SPECIFICATIONS & CONCOMITANT MEASUREMENT CRITERIA FOR THE ELEMENTARY SCHOOL CURRICULUM IN ART

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INTRODUCTION

This report documents the development of learning outcomes specifications and concomitant measurement criteria for the elementary school curriculum in Art in the Racine Unified Schools, Racine, Wisconsin. The project covered a three-year period, 1969-1972.

Initiated through Title III, E. S. E. A., this project is one part of the curriculum effort of a larger developmental project: Systems Approach to the Management of Educational Resources. Three content areas are included: art, mathematics and social studies.

Based on the behaviorally based art curriculum objectives published in the 1969 handbook, Art for Elementary Teachers, the art project entailed development of:

1. A continuum of learning outcome specifications for art grades K-6.
2. Appropriate measurement criteria for assessing the level of attainment of outcome specifications.
3. Broad staff involvement in the development of outcome specifications and related measurement procedures.

Assistance in this project has come from conferences and work sessions with other art educators, attendance at research seminars and workshops prior to and during the course of the Title III project and keeping abreast of current literature.

1. March 14-17, 1968: Research Seminar, St. Louis, Missouri
   Development of behaviorally based curriculum objectives in art K-6 for the Racine Unified Schools was begun during the 1967-68 academic year. A Research Seminar sponsored by NAEA, March 14-17, 1968, and held in St. Louis, Missouri, prior to

the National Art Education Association Annual Regional Conference, was of great help in clarifying ideas for an art curriculum based on behavioral objectives. Led by Professors Asahel Woodruff and Cecil Clark, the seminar involved about 30 art educators from an 18 state area.

2. March 25-29, 1969: Research Seminar, New York

During 1968-69, the art curriculum was developed with broad staff involvement including classroom teachers, elementary principals and helping teachers in art. A second NAEA-sponsored Behavioral Objectives Research Seminar, held in New York, March 25-29, 1969, prior to the Annual Conference, continued the 1968 studies and was again led by Professors Woodruff and Clark. About 95 art educators worked together for four days.

3. June 26-27, 1969: National Assessment Project, Ann Arbor

Participation as a resource person in the development of "National Assessment Items in Art" at a two-day Conference in Ann Arbor, Michigan, afforded an opportunity to become acquainted with the work of National Assessment and Professor Brent Wilson, Art Consultant to the Committee on Assessing the Progress of Education.

4. March 19-22, 1970: Research Seminar, Milwaukee

At a third pre-conference NAEA Research Seminar held in Milwaukee, Wisconsin, prior to the Annual Regional Conference, serious work was begun on development of a system for assessing the extent to which the goals of the established art curriculum in Racine are being realized.

5. September 18-19, 1970: Work with Professor Brent Wilson

A two-day work session with Professor Brent Wilson was held in

Racine. At this time preliminary writing of specific assessment items based on established curriculum goals in art was begun.

Literature in the field is scant but the following materials have been especially helpful:

1. Asahel Woodruff
Unpublished research seminar working papers; 1968, 1969.

2. Bloom, Benjamin S.; Hastings, J. Thomas; and Madaus, George F., Handbook for Formative and Summative Evaluation of Student Learning McGraw-Hill, 1971.
Brent Wilson, Chapter 17, "Evaluation of Learning in Art".

For the inclusion of art as one of the components and for the leadership and sense of direction given through innumerable conversations and conferences, acknowledgement is made to Milton C. Hillery, Ph.D., Project Consultant and former Director of Department of Research and Development, Racine Unified Schools.

DEVELOPMENT OF A CONTINUUM OF LEARNING SPECIFICATIONS FOR ART, GRADES K-6

During the 1968-69 and 1969-70 academic years elementary classroom teachers, helping teachers and interns in art and elementary principals were involved in development of a behaviorally based K-6 Art Curriculum for the Racine Unified Schools. About eight classroom teachers worked for one week in June, 1969, on the final draft of a handbook for elementary teachers.

A workshop for elementary principals from all thirty-five Racine Unified Elementary Schools met in four sessions in September and October, 1969. Principals reacted to working papers of the proposed format and content of the curriculum guide: Art for Elementary Teachers, which was completed and ready for distribution in October, 1969.

Total involvement of elementary classroom teachers occurred in October and November, 1969, when the new Curriculum Guides were distributed.

Meetings were scheduled after school at which time a visual presentation, including examples of children's work, highlighted: goals and objectives, priorities, motivations and themes, skills and techniques, grade level expectations and planning for a continuum of learning. Emphasis was placed on the importance of planning art experiences designed to realize the goals of the curriculum;

1. Helping children learn to make art;
2. Helping children learn to see and feel;
3. Helping children learn to understand art.

Teachers were required to attend one of the meetings and those unable to meet at the scheduled time were asked to attend a later meeting.

In addition to meetings for all classroom teachers, two workshops were held to acquaint unit and team leaders with the behavioral approach to planning art activities.

The 1969 Art Handbook made teachers aware of the importance of establishing precise, attainable goals, planning to achieve goals and evaluation based on behaviorally stated lesson and unit plans.

Grade level expectations were detailed for figure drawing and color learnings only. Other learnings were loosely stated as "What Children Can Learn" ranging from simple to complex learnings in these areas related to the making of art: subject matter or theme from the child's world, the grammar of art, skills and techniques in use of materials

Classroom teachers reacted favorably to the 1969 Art Handbook. The task of developing additional learning specifications has been continuous and unbroken with considerable involvement of classroom teachers and elementary principals.

Revision and Further Development of Learning Specifications

Following the field testing of assessment items in the spring of 1971, learning specifications were detailed for all areas of subject matter, considered to be from "the world of the child": People, Animals, Plants, Buildings, Vehicles, Machines. Rather than categorize "What children can learn" into precise grade levels, it was decided to group learnings into Grades 1 & 2, 3 & 4, and 5 & 6. This seemed more desirable for a number of reasons including the fact that a number of schools are organized on a unitized system.

Learning specifications for "What Children Can Learn: The Grammar of Art" and "Skills and Techniques in Working with the Materials of Art" are

stated in general terms in the 1969 Art Handbook. More precise grade level expectations remain to be written.

DEVELOPMENT AND ADMINISTRATION OF ASSESSMENT INSTRUMENTS, 1971

In the spring of 1971 field testing began on some assessment instruments designed to determine the extent to which we are achieving the goals of the art program.

Three schools were chosen for the study:

School A — An inner-city school with a mobile minority group population. No special emphasis in art.

School B — A suburban school with stable population. Much emphasis in art.

School C — A transitional school in a changing neighborhood near the inner-city with a primarily white population. Average art emphasis.

There was considerable variation in Mean I.Q. scores:

School A	Male 87.7	Female 91.1	Total 89.5
School B	Male 110.56	Female 116.81	Total 113.54
School C	Male 98.79	Female 103.93	Total 101.3

Median I.Q. Score, Schools A, B, C: 101.30

In Racine it is accepted that elementary art activities be planned and instructional effort be directed toward three major related and inseparable goals:

I. Helping children learn to make art

II. Helping children learn to see and feel

III. Helping children learn to understand art

The instruments used were designed to assess some aspects of the extent to which children are achieving grade level expectations in color understandings and drawing the human figure.

Assessment Instruments: Color Understandings

Two instruments were developed, based on color learnings as specified in Art for Elementary Teachers, pages 66, 67:

1. Color Circle Tests Examples on following pages

   Test sheets consisting of printed circles. Children were asked to fill in correct colors using wax crayons.

   Color Circle Tests were designed to test knowledge of color as follows:

   Grade 3 - Identification of three colors from which all other colors are mixed.

   * 66, 5: "Three colors cannot be made by mixing: yellow, red, blue. These are called PRIMARY COLORS."

   Grade 4 - Identification of primary and secondary colors.

   * 66, 5: "Three colors cannot be made by mixing: yellow, red, blue. These are called PRIMARY COLORS."

   * 66, 6: "Primary colors are mixed to make SECONDARY COLORS: orange, violet, green."

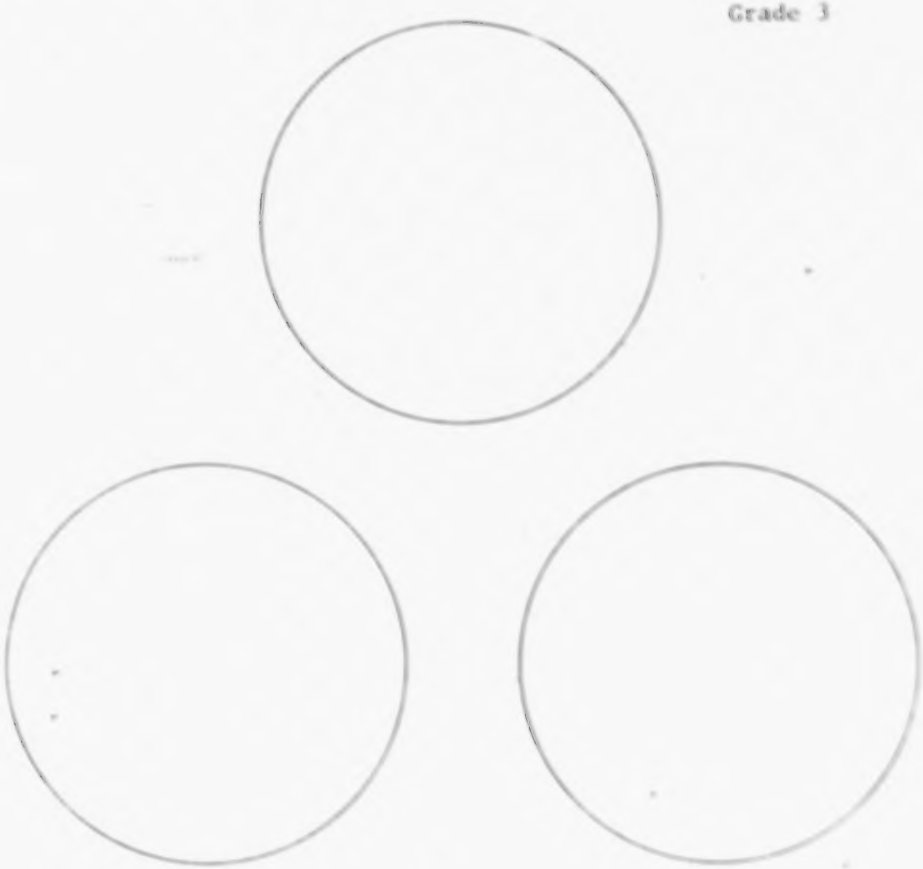
   Grade 5 - Identification of primary, secondary and intermediate or tertiary colors.

   * 66, 5: "Three colors cannot be made by mixing: yellow, red, blue. These are called PRIMARY COLORS."

   * 66, 6: "Primary colors are mixed to make SECONDARY COLORS: orange, violet, green."

   * 67, 25: "INTERMEDIATE or TERTIARY COLORS are derived by mixing secondaries with neighboring primaries."

* numbers refer to Art for Elementary Teachers, pages 66, 67, Items 5, 6, 25. All subsequent numbers re: color, same reference.



Pick out the primary colors in your crayon box.

Put one of the primary colors in each of the circles.

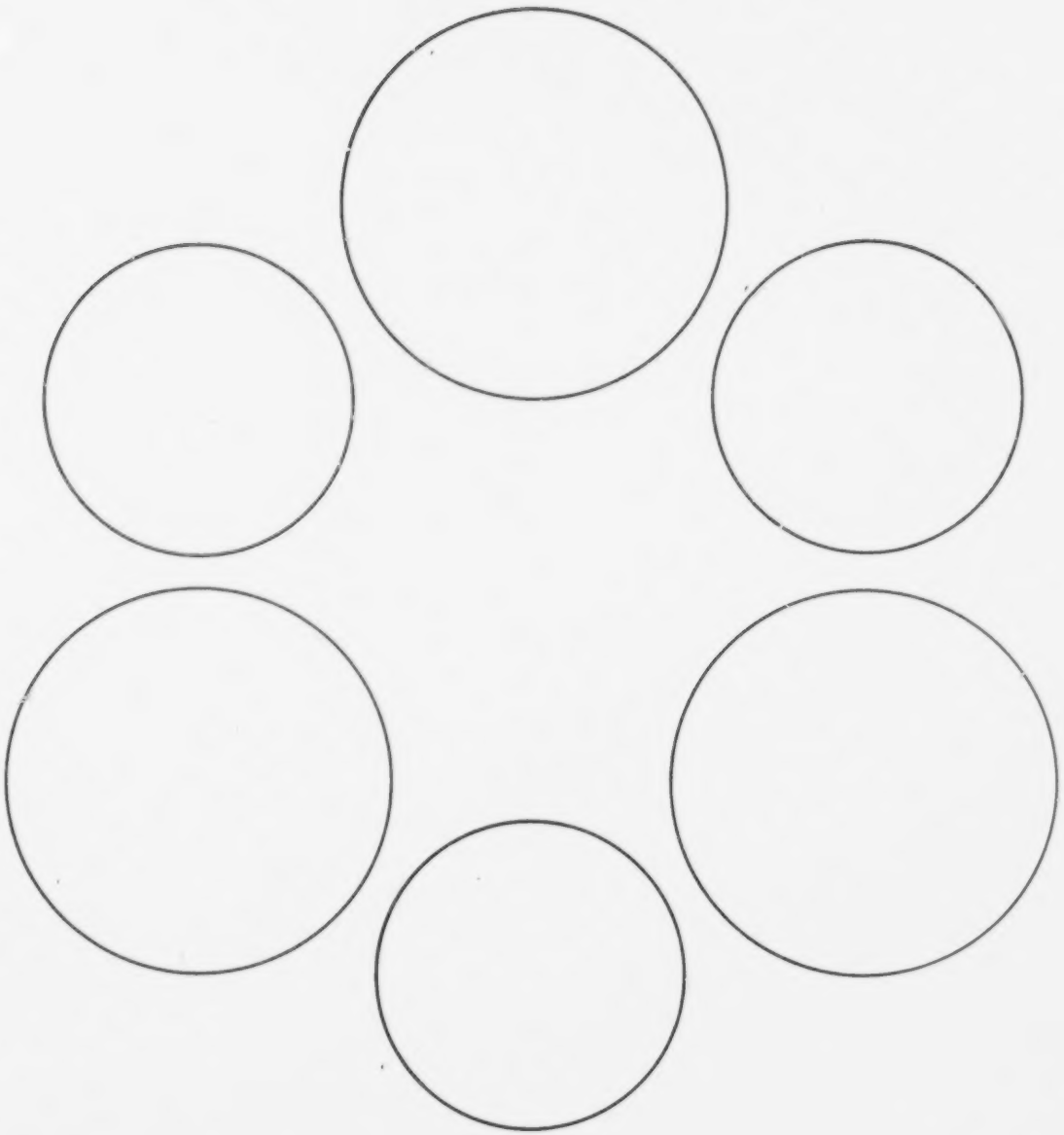
Color in one of the circles with one color.

Color another circle with another color.

Now color the last circle with the last color.

name _____

school _____ grade _____

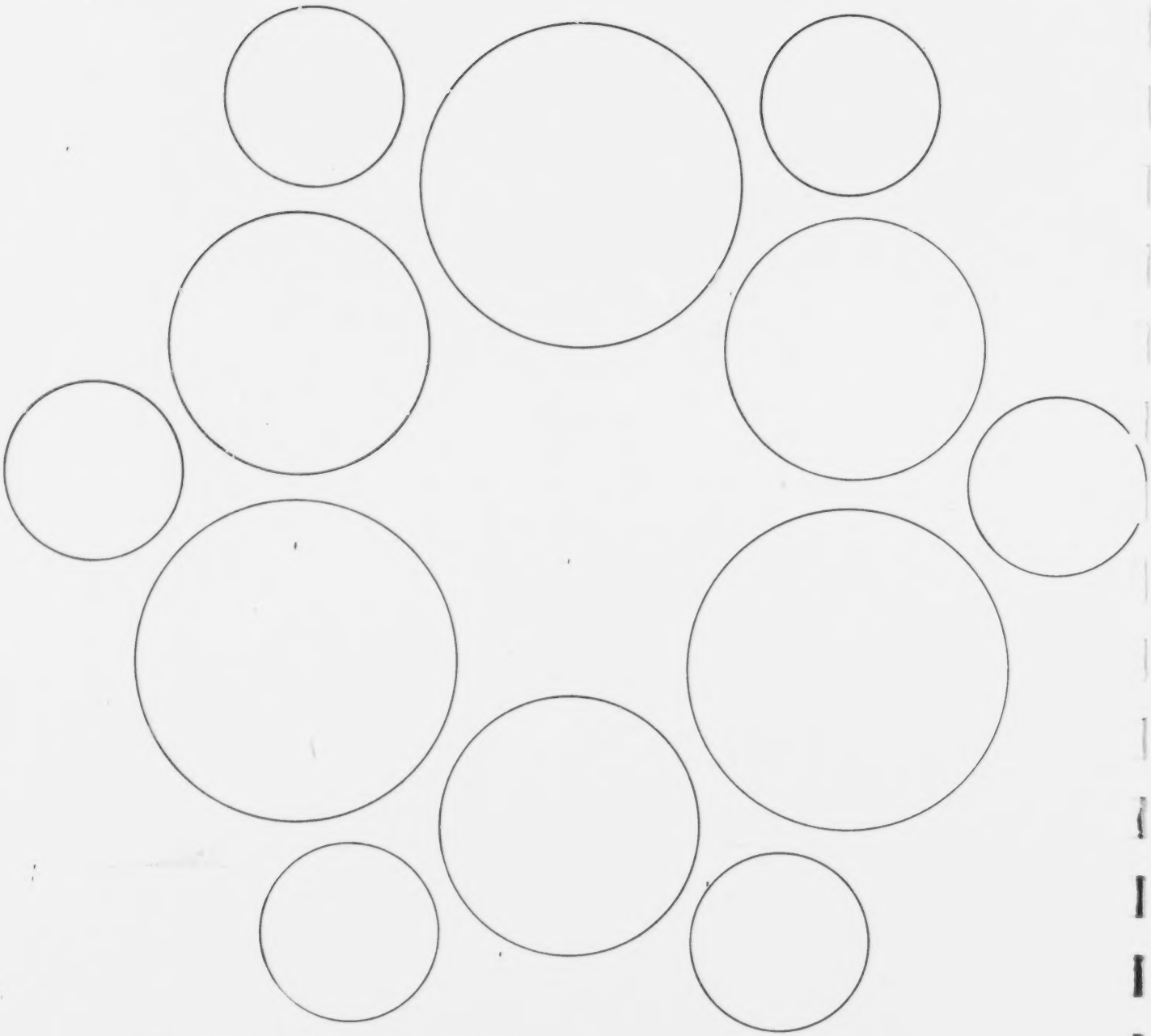


There are circles of two different sizes on this paper.
Using the colors in your color box, put the primary colors in the large circles.
Now put the secondary colors in the smaller circles.

name

school grade

Grade 5



There are circles of three different sizes on this paper.

Using the colors in your color box, put the primary colors in the large circles.

Put the secondary colors in the middle-sized circles.

Now put the color made by mixing the neighboring primary and secondary colors in the small circles between.

name _____

school _____ grade _____

2. Color Folders: Sets A and B

Test sheets were made by hand using circles of color cut from "Color-Aid" paper and pasted into printed spaces. The test sheets were laminated for protection. Removable answer sheets were attached. See sample, following page.

Color Folders were designed to test understandings of color as specified in Art for Elementary Teachers, pages 66, 67.

COLOR FOLDER A

Grades 3 & 4: Items 1, 2, 3, 4, 5

Grade 5: Items 1, 2, 3, 4, 5, 6, 7

Item

1. Which of the four colors is darkest?
   * 67 20 a 2 "Colors may be described as light or dark."

2. Which of the four colors is dullest?
   * 67 20 b 3 "Colors may be described as bright or dull."

3. Which pair will make the color above?
   * 66 6 a 1 "Primary colors are mixed to make secondary colors: red mixed with yellow makes orange."

4. Which color cannot be made by mixing others?
   * 66 5 "Three colors cannot be made by mixing: red, yellow, blue."

5. Which pair will make the color above?
   * 66 6 a 3 "Primary colors are mixed to make secondary colors: red mixed with blue makes purple."

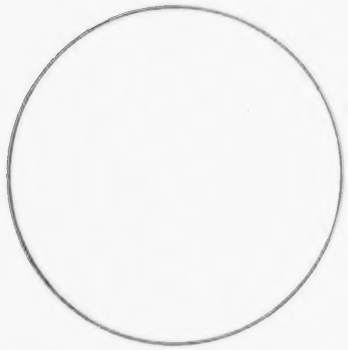
6. Which color would make the above duller?
   * 67 24 "Mixing complements grays or dulls the color: orange would make green duller."

7. Which of the four sets shows complementaries?
   * 67 22 "Complementary colors are opposite colors on the standard color circle."

name

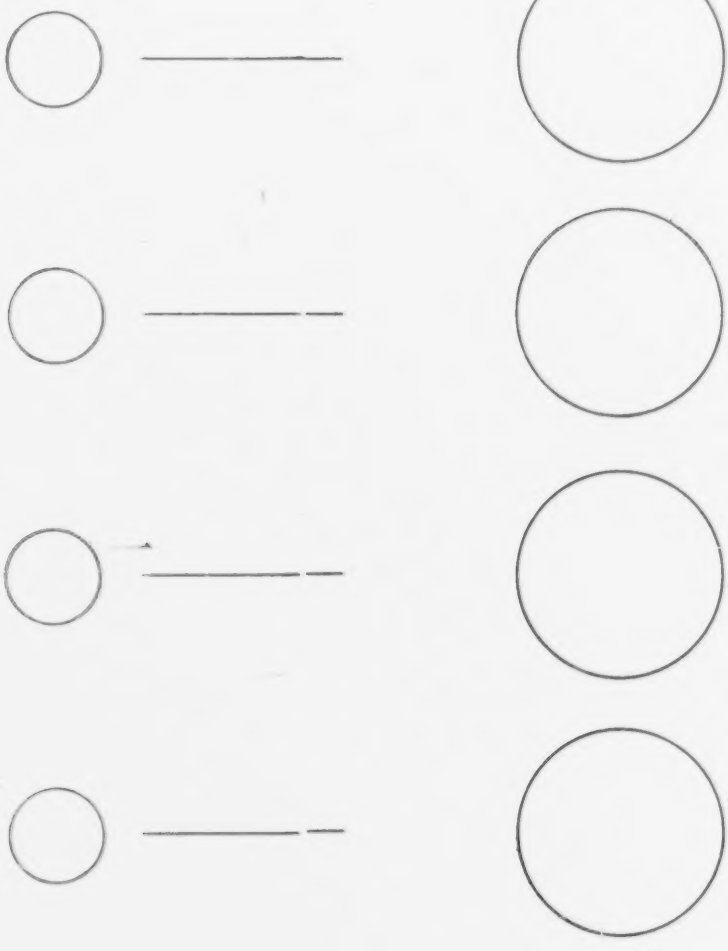
school

grade



Make an X in the small circle to the left of the set you have chosen.

If you wanted to make the color above duller, which one of the 4 colors below would you mix with it?



Removable Answer Sheet

I DON'T KNOW.

67
24

COLOR FOLDER B

Grades 3 & 4: 1, 2, 3, 4

Grade 5: 1, 2, 3, 4, 5, 6

Item

1. Which of the four colors is darkest?
   * 67 20a2 "Colors may be described as light or dark."

2. Which of the four colors is dullest?
   * 67 20a3 "Colors may be described as bright or dull."

3. Which pair makes the color above?
   * 66 6a2 "Primary colors are mixed to make secondary colors: yellow mixed with blue makes green."

4. Which of the four sets shows the primary colors?
   * 66 5a "Three colors cannot be made by mixing: yellow, red, blue. These are called PRIMARY COLORS."

5. Which of the four sets is a monochromatic set?
   * 67 27 "Monochromatic colors refer to one hue in various tints and shades, or one hue ranging from light to dark."

6. Which of the four sets is an analogous set?
   * 67 26 "Analogous colors are neighbors, or side by side, on the standard color circle."

Scoring: Color Assessment Items

Scoring the Color Circle and Color Folder tests was done by aides from the Department of Research. No specific criteria for scoring were necessary. Responses were either correct or incorrect.

The attached scoring sheets summarized points and items for each school by grade and sex.

14 COLOR CIRCLE Points Possible: Grade: Sex:

1	School Code	A	A
2		A	B
3		A	C
4	School Code	B	D
5		B	E
6		B	F
7		B	G
8	School Code	C	J
9		C	K
10		C	L

	0	1	2	3	4	5	6	7	8	9	10	11	12	Total
1														
2														
3														
4														
5														
6														
7														
8														
9														
10														

	Items												
	R	Y	B	O	G	V	RO	YO	YG	BG	BV	RV	Total
1													
2													
3													
Sub-total													
4													
5													
6													
7													
Sub-total													
8													
9													
10													
Sub-total													
TOTAL													

COLOR FOLDERS SET Grade Sex

Points Possible:

KEY

1 School code

2 School code

3 School code

4 School code

5 School code

Points

School	0	1	2	3	4	5	6	7	Total
1									
2									
3									
4									
5									
Total									

Response	School	Items 1	2	3	4	5	6	7
A	1							
	2							
	3							
	4							
	5							
B	1							
	2							
	3							
	4							
	5							
C	1							
	2							
	3							
	4							
	5							
D	1							
	2							
	3							
	4							
	5							
E	1							
	2							
	3							
	4							
	5							

Summary: Color Tests

Graphs showing results on Color Circle Tests and Color Folder Tests A and B are included in Appendix I, Graphs II - X, pages 62-70.

Interpretation and explanation of data is detailed on pages 55-58 and 59.

It has been pointed out that the color assessment items used in this study are basically factual. Scoring of tests was completely objective, answers were either right or wrong.

The challenge of developing test items which can assess color understandings in a less formal way will hopefully result in more exciting kinds of instruments. One of the great difficulties in developing color test items is that of production of items in true color, but we plan hand-production of a different kind of instrument making use of color aid papers for the models.

ASSESSMENT INSTRUMENTS: DRAWING
GRADES 5, 4, 3

With Anecdotal Summary of Development of Criteria for Evaluation of Drawings

Drawing tests were designed to determine the extent to which children are learning to draw the human figure. The instruments were based on the following learning specifications as defined in Art for Elementary Teachers.

Grade 3 Item 6 a, page 34

"Children can learn to show front, profile and back views."

Grade 4 Item 14, page 35

"Children can learn to put figures together in groups showing varied poses, overlapping, and front, back and profile views."

Grade 5 Item 3, page 34

"Children can learn to show bodily movement in the figure."

Considerable revision was made of scoring criteria which had been developed when the tests were designed. A major aim was that of developing a highly objective system which would be usable by personnel with limited training in art and which would allow for a minimum of subjective judgment.

The material which follows documents steps in development of criteria for scoring.

G R A D E 5

DEVELOPMENT OF CRITERIA FOR EVALUATION OF DRAWINGS

Development of criteria for evaluating drawings involved the problem of establishing an objective point scale which could be used by any observant individual willing to follow instructions carefully.

Documentation of the development of criteria serves to indicate the tediousness of coming up with a highly specific point scale which allows for as small a margin of error as possible.

Criteria for Grade Five were developed first, primarily because this was believed to be the most difficult task. The problem given fifth grade children was designed to determine the extent to which pupils have learned to show bodily movement in the figure.

Item 3, Page 34 "Children can learn to show bodily movement in the figure."

Problem: Pretend that you are at a football game. The cheerleader is leading a cheer. In the frame below draw the cheerleader jumping high in the air.

Materials: Soft drawing pencil without eraser.
White drawing paper 8½" x 11" with instructions printed above a frame 6" x 7-3/8"

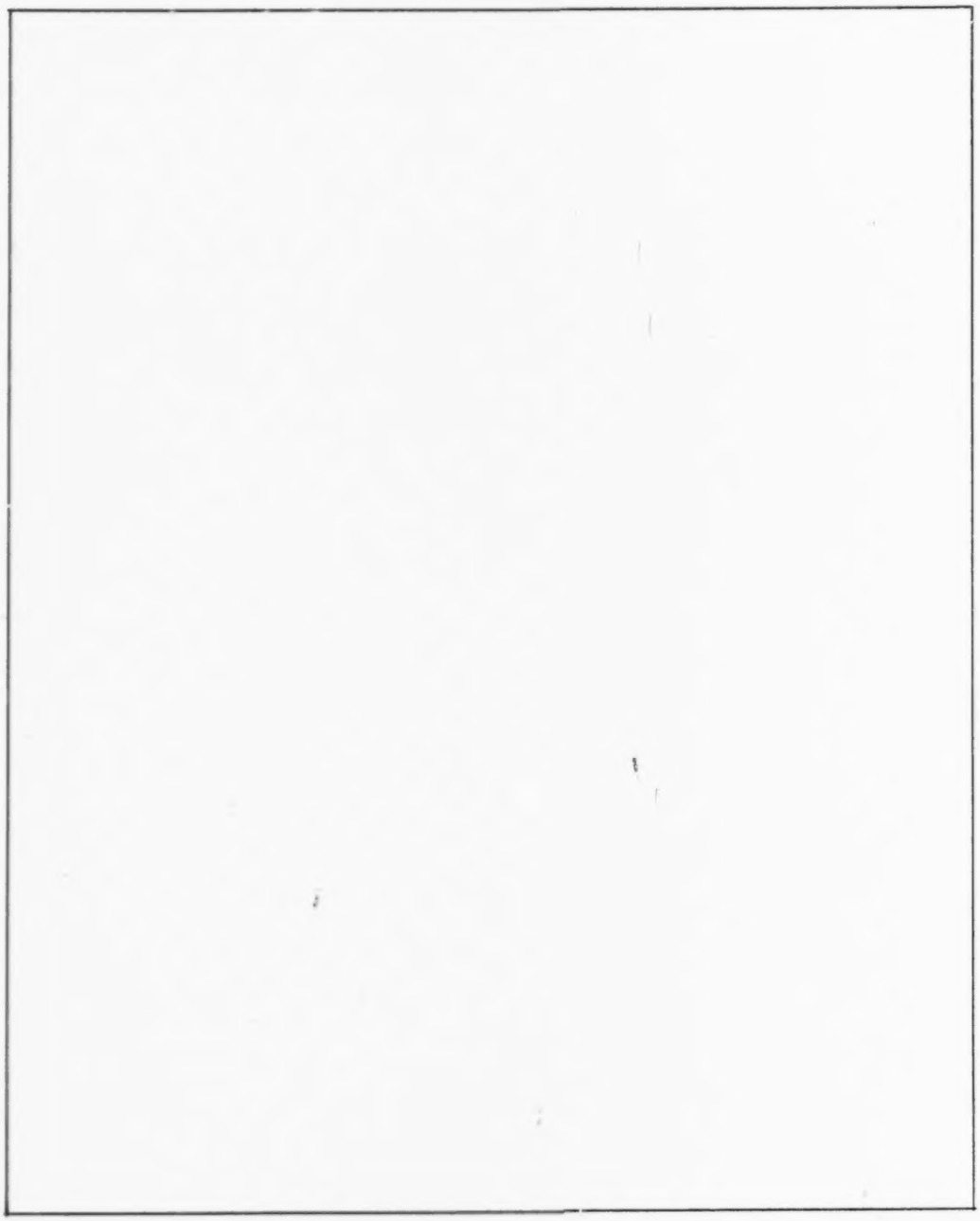
Initially it was intended to develop a five point scale as follows:

1.	Figure off the ground	1
2.	Body bent forward or backward	1
3.	Arms and legs spread apart	1
4.	Hands and feet in action	1
5.	Bent or curved arms and legs (jointed)	1
	TOTAL POSSIBLE:	5

It also had been noted that head, pose, twist of body, extreme differentiation of body movement should be observed.

PRETEND THAT YOU ARE AT A FOOTBALL GAME. THE CHEERLEADER IS LEADING A CHEER. 19

IN THE FRAME BELOW DRAW THE CHEERLEADER JUMPING HIGH IN THE AIR.



In working out criteria for evaluation, the first step was to sort all of the drawings and put them in piles from 1 through 5 roughly, or 1 to 3 roughly, on the basis of indication of bodily movement. This task was performed in mid-June by two art interns who had completed their teaching assignments of 10 weeks in the elementary art programs, Mrs. Lenore Sydnor, helping teacher in art, and myself. The rough sorting revealed considerable differentiation in indications of bodily movement. As these variations were noted, it was obvious that the point scale should be expanded. A list of all of the ways in which bodily movement was indicated was compiled and this resulted in a 10 point scale as follows:

1. Figure off the ground
2. Twisting of head, turning of neck
3. Bending of torso
4. Bending of arms at elbow
5. Bending of legs at knees
6. Twist of wrist
7. Bending of ankles
8. Action suggested by arms
9. Action suggested by legs
10. Action suggested by clothes, hair, etc.

TOTAL POSSIBLE: 10 points

This scale was duplicated on slips of paper 2-3/4" x 4½", and a number of sets of drawings were evaluated by art interns and helping teacher. Evaluation slips were clipped to each drawing. Later, a research assistant and I scored the tests, using the same scale. Comparison of our scoring revealed considerable deviation. The points on which we could not find agreement were:

2. Twisting of head and turning of neck
3. Bending of torso
4. Bending of arms at elbow
5. Bending of legs at knees

While items 2, 3, 4, and 5 gave us problems, even greater difficulty

was found in:

6. Twisting of wrist
7. Bending of ankles
8. Action suggested by arms
9. Action suggested by legs
10. Action suggested by clothes, hair, etc.

Our problem was essentially a lack of specificity. We began working out a list of acceptable and unacceptable items, forcing us to become more precise. While we continued to find considerable deviation in scores due to lack of understanding and lack of specificity, we began noting areas where greater clarity was needed.

The scale was revised with points rearranged from most obvious action to least obvious or more difficult action to assess.

FIRST STAGE	SECOND STAGE
1. Figure off the ground	1. Figure off the ground
2. Twisting of head, turning of neck	2. Bending of arms at elbow
3. Bending of torso	3. Bending of legs at knees
4. Bending of arms at elbow	4. Twisting of wrist
5. Bending of legs at knees	5. Bending of ankles
6. Twist of wrist	6. Twist of head, turn of neck
7. Bending of ankles	7. Bending or twisting of torso
8. Action suggested by arms	8. Arms in action
9. Action suggested by legs	9. Legs in action
10. Action suggested by clothes, hair	10. Additional action

With the revised scale we proceeded with the tedious task of reaching agreement on the items:

1. Figure off the ground	relatively easy to judge.
2. Bending of arms at elbow	easy after it was established that the arms must be abruptly bent, and at a point approximately halfway between the wrist and shoulder.

3.	Bending of legs at knees	easily judged after establishing that the legs must be abruptly bent at knee, and approximately halfway between hip and ankle.
4.	Twisting of wrist	changed to "Hands in action." Hands must be distinctly indicated with five fingers.
5.	Bending at ankles	changed to "Feet in action." Feet must be distinctly indicated, one or both feet definitely outstretched or in recognizable, distinct action pose.
6.	Twisting of head, turning of neck.	changed to "Head in action," with specific statements for clarification.
7.	Bending or twisting of torso	same.
8.	Arms in action	same.
9.	Legs in action	same.
10.	Additional action	changed to "Additional action, clearly indicated."

A list of examples of each item was added for clarification.

THIRD AND FINAL COPY

1. Figure off the ground
2. Bending of arms at elbow
3. Bending of legs at knees
4. Hands in action
5. Feet in action
6. Head in action
7. Bending or twisting of torso
8. Arms in action
9. Legs in action
10. Additional action

With the final revision, drawings were scored and comparisons made. Mrs. Dawson and I reached agreement ranging from 67% to 100%. On July 7, 1971, we called in a third person, a secretary, and scored drawings from one class. The three of us were able to reach an agreement of 67% to 100% as follows:

1.	Figure off the ground	81%
2.	Bending of arms at elbows	94%
3.	Bending of legs at knees	90%
4.	Hands in action	84%
5.	Feet in action	75%
6.	Head in action	81%
7.	Bending or twisting of torso	97%
8.	Arms in action	67%
9.	Legs in action	81%
10.	Additional action	100%

We were agreed that with this degree of validity, there was no need for more work on criteria.

The following day, Mary Gray from the Research Department, joined us. She had assisted in administering the tests, but had not been familiarized with the determination of criteria for judgment. Using the criteria which had been established with the Acceptable and Unacceptable and taking a different set of tests, we scored separately. On comparing scores, we found our agreement to be as follows:

1.	82%	6.	64%
2.	73%	7.	79%
3.	73%	8.	71%
4.	96%	9.	75%
5.	96%	10.	86%

We scored several other sets, and were agreed that we had sufficiently refined the criteria. This scoring was done on July 8, 1971, but final agreement came on July 7, 1971.

The complete ten-point scale with Acceptable and Unacceptable responses follows:

CRITERIA FOR SCORING GRADE V DRAWINGS

	ACCEPTABLE	UNACCEPTABLE
1.	Figure off ground	
	a. Ground line clearly indicated.	a. No ground line.
	b. Figure placed clearly above goal post, bench, people, etc.	b. Goal post, bench, people, etc. included but no clear indication figure is above.
	c. Cloud-like forms around figure indicating that it is above ground.	
2.	Bending of arms at elbow	
	a. One or both arms abruptly bent.	a. No bending.
	b. Bend less abrupt but elbow definitely indicated, and arms clearly bent approximately halfway between hip and ankle.	b. Arm bent near shoulder or wrist.
3.	Bending of legs at knees	
	a. One or both legs abruptly bent.	a. No bending.
	b. Bend less abrupt but legs clearly bent approximately halfway between hip and ankle.	b. Legs bent near ankle or hip.
4.	Hands in action	
	a. One or both hands distinctly indicated with five fingers and in action: waving pom pom, holding megaphone, twirling a baton, etc.	a. Hands definitely indicated, no action. Hands indistinctly indicated.
5.	Feet in action (feet must be distinctly indicated)	
	a. One or both feet definitely outstretched as an extension of the leg.	a. Feet at right angles to leg as in an erect or standing pose.
	b. One or both feet definitely tilted back toward leg.	
	c. One or both feet definitely posed as if on tiptoe.	
6.	Head in action	
	a. Body front, head turned profile.	a. Straight front or profile view.
	b. Head definitely turned right or left of body.	b. Indefinite turn of head.
	c. Head definitely uplifted or tilted up or down.	c. Indefinite tilt of head.

7. Twisting or bending of torso
   a. Body front, legs and feet profile.
   b. Legs front, body and arms profile.
   c. One leg thrust forward, the other backward indicating twist of hips.
   d. Definite bend of body at waistline.
   e. Body bent forward or backward.

   a. Straight front or profile view.

8. Arms in action
   a. One arm up, the other down.
   b. Arms reaching, stretching, muscles flexed.
   c. Arms in two distinct positions.
   d. One arms close to body, other definitely extended.
   e. Arms aloft or extended, holding object or objects in different poses.
   f. One arm longer than the other.

   a. Arms pendant, hanging at sides.
   b. Arms apart, no action indicated.
   c. Arms identical, or almost identical, in position.
   d. Both arms close to body.
   e. Arms aloft or extended holding objects in identical poses.
   f. Arms same length.

9. Legs in action
   a. One leg up, other down.
   b. One leg thrust forward, other backward.
   c. Kicking, jumping, or floating movement as indicated by legs bent or spread.
   d. Legs pushing upward as if on tiptoe.
   e. Legs spread apart, one leg bent or above another, with clear indication of overlapping.
   f. Legs in walking position with one foot up, one down.

   a. Legs on same ground level.
   b. Two legs virtually identical in pose.
   c. Legs at right angle bend.
   e. Legs identical in pose, virtually same length, no indication of thrust or overlapping.
   f. Legs in static pose.

10. Additional action. Must be clearly indicated.
   a. Hair as if windblown, all going in same direction and away from head.
   b. Pom-poms as if windblown, fringe going in one direction.
   c. Pennants or flags moving, as indicated by ripple, fold, or waving motion.
   d. Skirt or pants blown in one direction, distinctly and clearly away from body.
   e. Jet-action lines around or below figure.
   f. Jet-action lines thrusting figure upward.

It was decided that the written criteria for scoring should be documented by photographs of drawings to illustrate acceptable and unacceptable responses. The drawings were photographed on 35 mm. Panatomic X film, with fine-grain processing. Prints were made to size 3" x 5", showing complete area of drawings. These photographs with explanatory copy comprise Appendix II, pages 60, 76-85.

Final step for evaluation of Drawings, Grade 5, was application of the final scoring criteria to all groups. Mrs. Dawson and I worked together on these scores during the week of July 12-16. The small cards were scored and attached to all drawings. Having worked with the items for such a long time, it was relatively easy to agree on scores. Final score sheets were inserted in the folders and the following few days were spent in adding the data from this test to the master sheet for computerization.

It is believed that the Criteria for evaluation as now stated can be used by any observant individual willing to follow instructions. Study of criteria and accompanying photographs should result in relatively objective judgments. While some subjective judgments may enter into evaluation, it should be possible to categorize responses as Acceptable or Unacceptable.

Summary: Drawing Test, Grade 5

Developing criteria for Grade 5 was a most difficult task. Many factors entered into the determination of action in the figure. It was necessary to develop precise, clear definitions for the points given for different kinds of action. Finding solutions to the problems encountered in developing criteria for Grade 5 made it easier to develop evaluative criteria for Grades 3 and 4.

Grade 5 was completed as of July 27, with the exception of the Color Circle Test. The Color Circle scores were inserted and the material was taken to the computer for the extraction of specific data and comparison of different grades, sex, and other factors.

Analysis of Drawing scores, Grade 5, is included in Appendix I, Graphs III, page 63; VII, page 67; XV, page 75.

Interpretation of Data is on pages 57-60.

DEVELOPMENT OF CRITERIA FOR EVALUATION OF DRAWINGS GRADE FOUR

This test was administered to determine the extent to which children are meeting one of the grade level expectations in figure drawing.

Item 14, page 35 "Children can learn to put figures together in groups showing varied poses, overlapping, and front, back, and profile views."

Problem: Draw a group of five children standing close together waiting to get inside the school building.

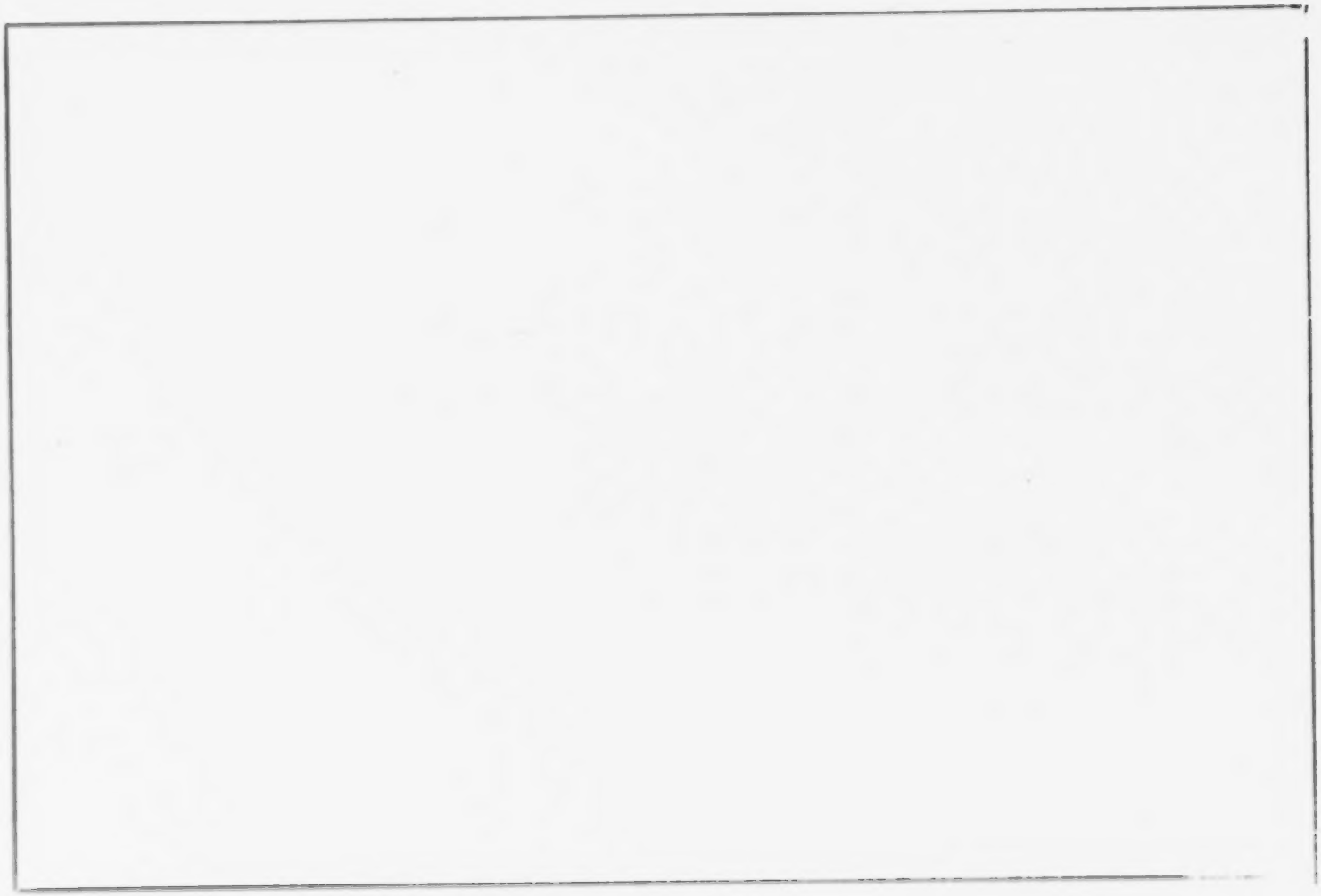
Materials: Soft lead pencil without eraser.
White drawing paper 8½" x 11" with instructions printed at top and frame 5-5/8" x 8-3/8".

Criteria for Scoring: Points:

1. Five or more children
2. Overlapping one or more
3. Front view one or more
4. Side view one or more
5. Back view one or more
6. Figures in varied poses
7. Compact linear grouping
8. Compact cluster grouping

TOTAL POSSIBLE: 8

IN THE FRAME BELOW DRAW A GROUP OF FIVE CHILDREN STANDING CLOSE TOGETHER WAITING TO GET INSIDE THE SCHOOL BUILDING



A preliminary sorting of drawings was made on June 9 and 10, 1971. Personnel involved were two art interns, helping teacher in art, K-6, and Art Consultant, K-12

The following criteria resulted from the sorting:

5 point scale Stage 1

1. Five or more children
2. Overlapping of one or more
3. Front view of one or more
4. Side view of one or more
5. Back view of one or more

After further observation of the drawings it was decided that one point should be given for figures in varied poses, and two points for "tightness of grouping" or compactness of arrangement of figures.

8 point scale Stage 2

1. Five or more children
2. Overlapping of one or more
3. Front view of one or more
4. Side view of one or more
5. Back view of one or more
6. Figures in varied poses
7. Tightness of grouping (two points)
8.

While not specified in the directions given to the children, this test was developed to assess the extent to which children are able to put figures together in groups, to show overlapping, front, back and profile views, and to represent varied poses. These are a part of the criteria for the assessment.

After the preliminary sorting, we began the problem of developing criteria for scoring as had been done for Grade 5. Acceptable and Unacceptable were determined for each item.

1. Five or more children	easily determined simply by counting.
2. Overlapping of one or more	overlapping must be distinct, touching of one hand to another does not constitute overlapping.
3. Front view of one or more	must be straight front view of head, torso, legs, feet.
4. Side view of one or more	must be complete with head, arms, torso, and legs in profile; partial side or profile unacceptable.
5. Back view of one or more	complete back view; partial back view unacceptable.
6. Figures in varied poses	one or more of the figures must be doing something different from others in the group; figures in varied poses with no clear indication of what they are doing unacceptable. Figures with only arms or legs in different poses would not constitute varied poses.

7. Tightness of grouping needed more clarification.
8.

In tightening up and becoming more specific for the last two items it was decided that Points 7 and 8 had to be clarified. There were two predominant types of groupings observable in the drawings. One was a linear grouping, the second a cluster grouping. We became more specific defining Item 7 as a compact linear grouping, with figures in a line and one or more bodies tightly overlapped. One had to overlap another. Figures in a line with one or more bodies overlapped and on different levels was also acceptable, in which case there was a clear indication of middle-ground, foreground, and background. Figures in a line with overlap of hands and arms only was unacceptable. Figures on different levels with overlapping of hands and arms only and without differentiation of foreground, middle-ground and background was also unacceptable.

Item 8 was specified as "Compact cluster grouping." Figures were in a circular or elliptical grouping with compact overlapping of one or more bodies. This meant torsos had to overlap other torsos. Compact cluster grouping with clear indications of foreground, middle-ground, and background was acceptable. Figures in a cluster with overlapping of hands and arms only was unacceptable. Drawings lacking differentiation of foreground, middle-ground, and background were unacceptable. With these points clarified, we were ready to proceed with scoring.

On Wednesday, July 28, Mrs. Carol Dawson from the Research Department and I reviewed the criteria and a new scoring sheet which I had developed. We applied the criteria to one set of drawings while I pointed out my rationale for criteria. The criteria seemed satisfactory. We scored School B 4G, males only separately and compared our results which were as follows:

1. 100%
2. 100%
3. 92%
4. 69% (Due primarily to a misunderstanding)
5. 85%
6. 92%
7. 85%
8. 92%

On Set B 4D, our results were similar, ranging from 80% to 100%. The specifications were much more precise and there was less room for argument than in the criteria worked out for Grade 5. On July 29, 1972, we had reached the point of applying criteria and assigning scores to all sets of 4th Grade Drawings.

The final Criteria for scoring follows on page 34. An Item Analysis graph is included in Appendix I, Graph XIV, page 74.

CRITERIA FOR SCORING GRADE FOUR DRAWINGS

ACCEPTABLE	UNACCEPTABLE
1. Five or more children.	Fewer than five children.
2. Overlapping of one or more.	
a. Minimal overlapping of arms, hands, legs, feet, clothing.	a. No overlapping. Touching does not constitute overlapping.
b. Anything that holds the group together.	
3. Front view of one or more.	
a. Must be straight front: head, torso, legs and feet.	
4. Side view of one or more.	
a. Side view must be complete: head, torso, arms and legs in profile.	a. Partial side or profile view.
5. Back view of one or more.	
a. Complete back view.	a. Partial back view.
6. Figures engaged in varied activity.	
a. One or more figures doing something different from others in the group.	a. All figures doing essentially the same thing.
1. One with arms uplifted, others with arms down but clear indication of activity.	b. Figures in varied poses, but no clear indication of what they are doing.
2. One walking in a different direction from others.	c. Arms or legs in different positions, no clear indication of activity.
3. Child bouncing a ball, or engaged in other activity.	
7. Compact linear grouping.	
a. Figures in a line with one or more bodies tightly overlapped. Arms or legs distinctly overlapping torso of another figure.	a. Figures in a line, overlapping of arms and hands only.
b. Figures in lines, one or more bodies overlapped, and on different levels.	b. Figures on different levels, overlapping of hands and arms only.
c. Clear indication of foreground, middle-ground, and background.	c. No differentiation of foreground, middle-ground and background.
8. Compact cluster grouping.	
a. Figures in a circular or elliptical grouping, compact overlapping of one or more bodies.	a. Figures in a cluster, overlapping of hands and arms only.
b. Clear indication of foreground, middle-ground and background.	b. No differentiation of foreground, middle-ground, and background.

DEVELOPMENT OF CRITERIA FOR EVALUATION OF DRAWINGS, GRADE THREE

This test was administered to determine whether children are meeting one of the grade level expectations in figure drawing, the ability to draw front, profile and back views of the human figure.

Item 6 a, page 34	"Children can learn to show front, profile, and back views."
Problem:	In the three frames below draw three pictures of the same person. In Frame 1 draw the person from the front. In Frame 2 draw the person from the side. In Frame 3 draw the person from the back.
Materials:	Soft lead pencil without eraser. White drawing paper 8½" x 11" with instructions printed at top and three vertical frames 3½" x 6½".
Criteria for Scoring:	Three point scale 1 Front 1 Profile 1 Back Total Possible: 3

As we began scoring, we realized that a more precise scale would have to be developed. There were many variations in the extent to which children showed front, profile and back views. We determined that the human figure consists of four basic parts: head, torso, arms and hands, legs and feet. To score two points all four basic parts had to be included. If drawings indicated three of the four basic parts, one point was given. The revised and final point scale made possible a total of 6 points:

Full front	2	
3/4 front		1
Full profile	2	
3/4 profile		1
Full back	2	
3/4 back		1
Points Possible:	6	

For further clarification a listing of acceptable and unacceptable responses was made:

	ACCEPTABLE	UNACCEPTABLE
1.	Front Full front: head, torso, arms and hands, legs and feet.	
	Three of four basic parts front.	Anything less than three basic parts front.
2.	Profile Full profile.	
	Three of four basic parts profile.	Anything less than three basic parts profile.
3.	Back Full back.	
	Three basic parts back.	Anything less than three basic parts back.

A graph showing an item analysis of scores in Schools A, B, and C, based on the above criteria is included in Appendix I, Graph XIII, page 73.

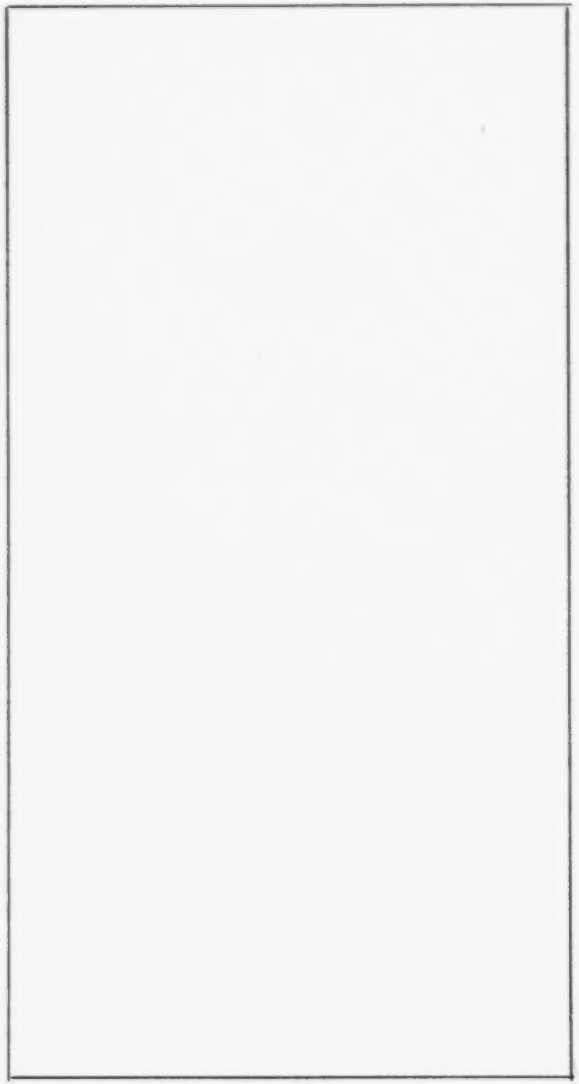
IN THE THREE FRAMES BELOW DRAW THREE PICTURES OF THE SAME PERSON. IN FRAME 1 DRAW THE PERSON FROM THE FRONT.

IN FRAME 2 DRAW THE PERSON FROM THE SIDE. IN FRAME 3 DRAW THE PERSON FROM THE BACK.

1

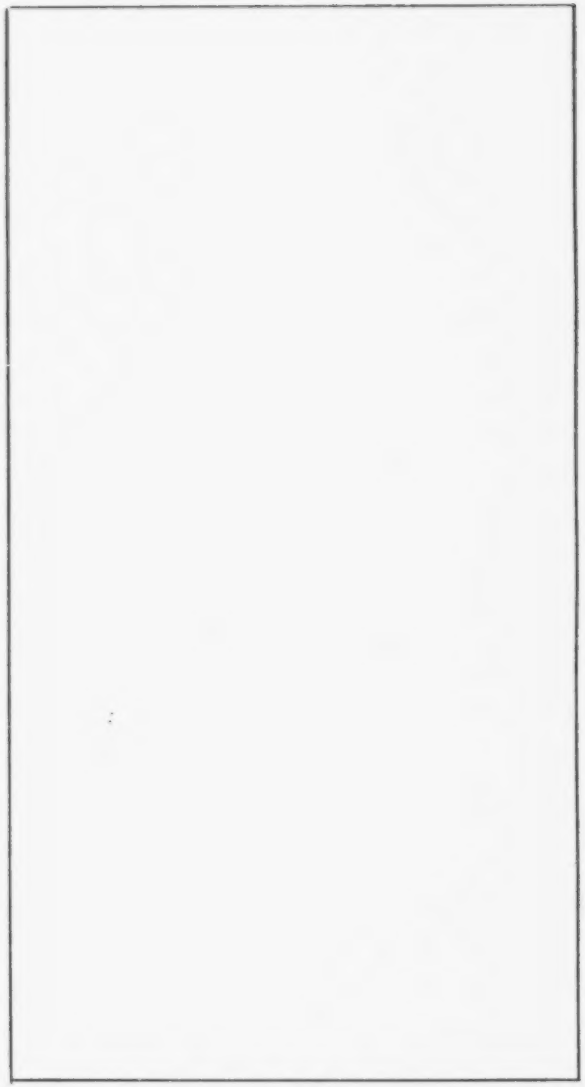
FRONT

2



SIDE

3



BACK

DEVELOPMENT OF MEASUREMENT CRITERIA, SPRING 1972

In May, 1972 drawing tests were administered to selected groups of children in three schools, grades 3, 4, 5. Schools were chosen as counterparts of those selected for testing in 1971:

School D An inner-city school with a mobile minority group population. No special emphasis in art.

School E A suburban school with stable population. Much emphasis in art at all grade levels.

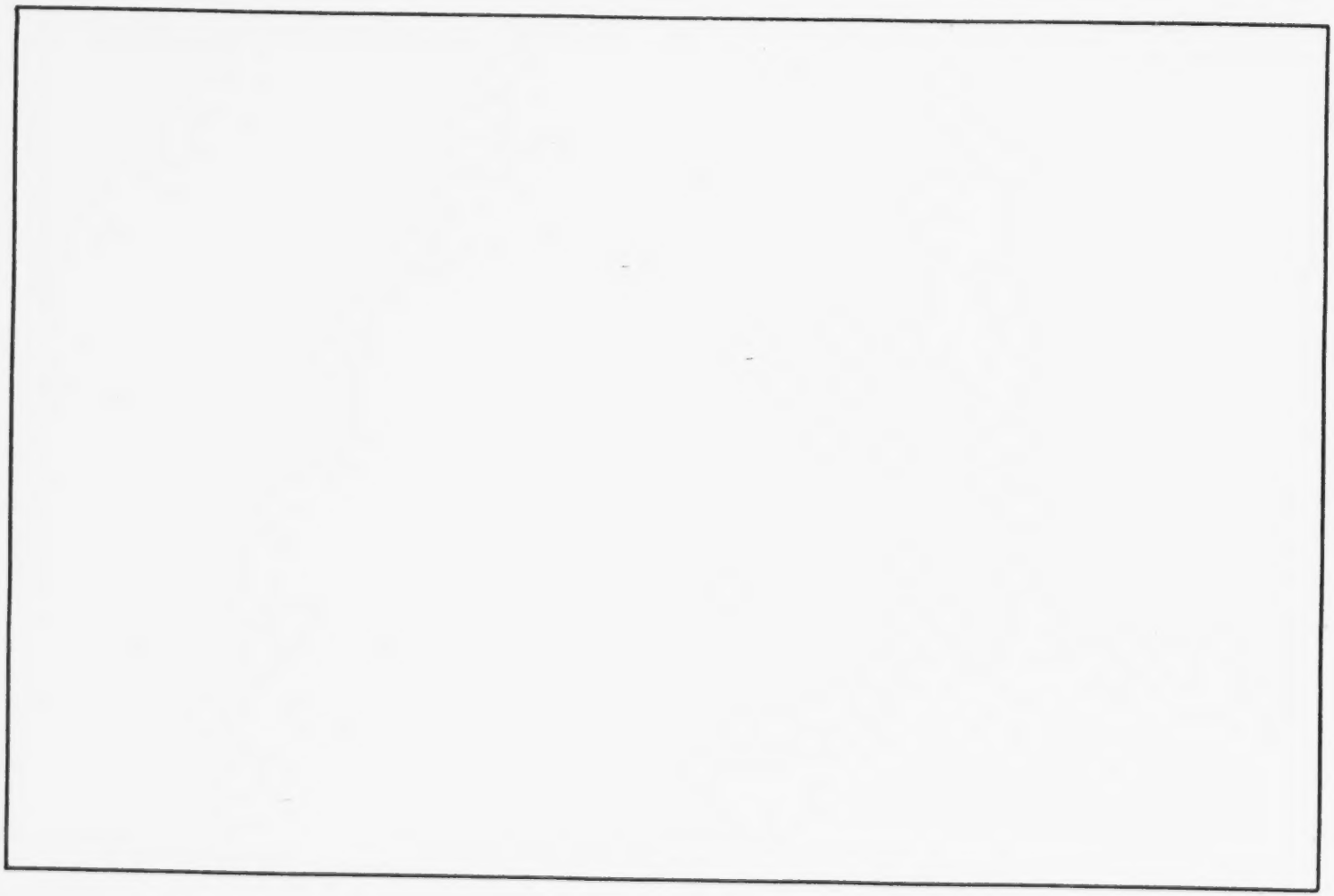
School F A transitional school in a changing neighborhood near the inner city. Primarily white population. Average art emphasis.

Based on the revised grade level expectations (Appendix III) assessment items were developed to determine the extent to which children are meeting the goals of the art program in making pictorial representations of animals, buildings, vehicles from memory.

Materials were distributed and children were asked to write name, grade and school on reverse of test sheet. Instructions were read when all pencils were flat on desk as a signal that the writing was finished. The instructions were read once, slowly and clearly, then repeated and children immediately began work.

In all grades children were allowed thirty minutes, but most children completed the task within fifteen to twenty minutes.

IN THE FRAME BELOW MAKE A DRAWING OF A FOUR-LEGGED ANIMAL WITH HAIR OR FUR. MAKE THE ANIMAL FILL THE SPACE. INCLUDE AS MANY PARTS OF THE ANIMAL AS YOU POSSIBLY CAN.



GRADE 3 "What Children Can Learn: Animals"

Children can learn to

Item 1 "Show increasing awareness of variety of animals"

Item 2 "Differentiate sizes of body parts"

Item 4 "Show parts in natural relationship . . . be increasingly aware of characteristic details"

Item 8 "Show repeated patterns in animal coverings"

Problem: Make a drawing of a four-legged animal with hair or fur. Make the animal fill the space. Include as many parts of the animal as you possibly can.

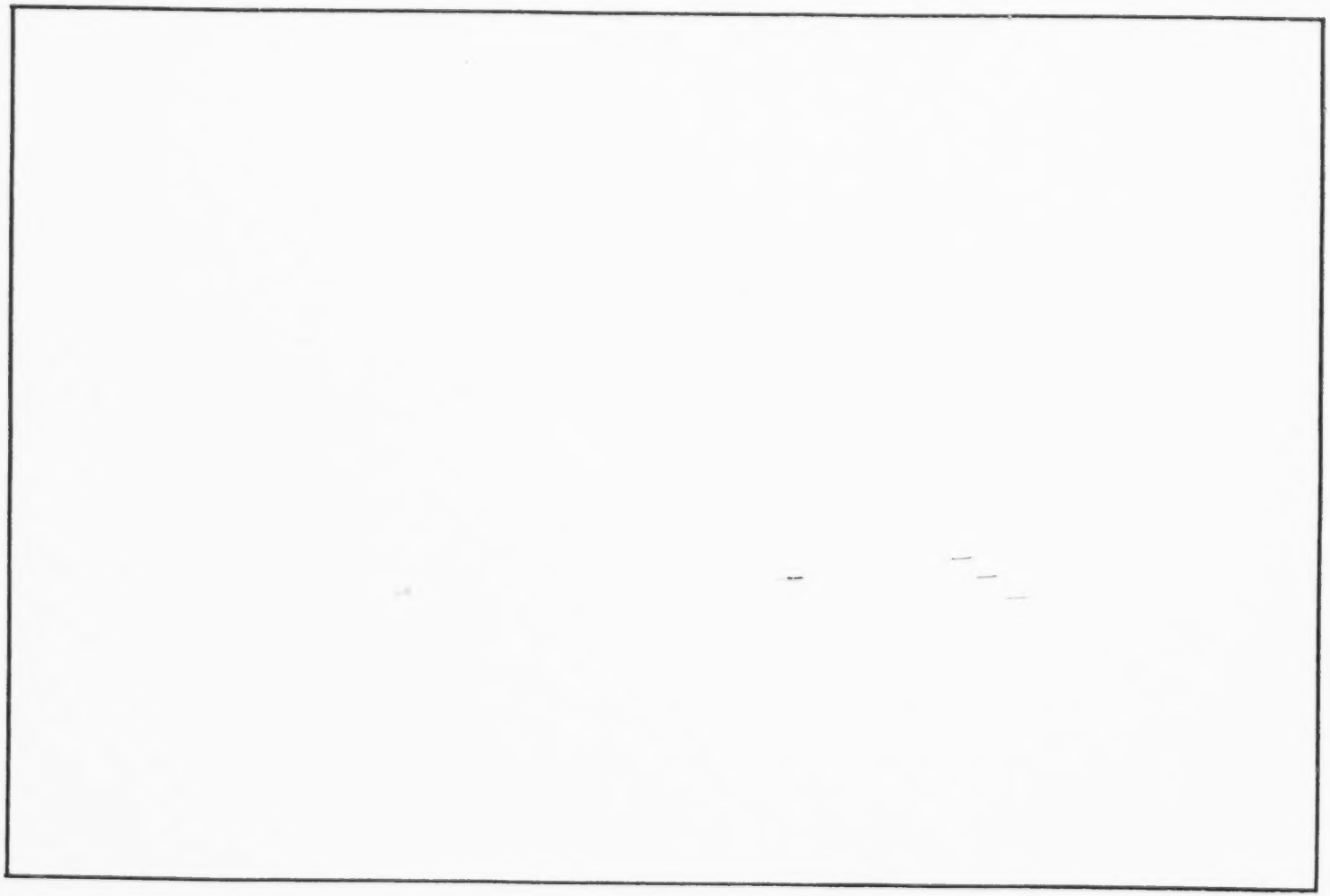
Materials: Soft drawing pencil without eraser.

White drawing paper 8½" x 11" with instructions printed above a frame 5½" x 8½".

Scoring: Preliminary Point Scale

1	Animal occupies about 3/4 of space
1	Four legged animal
1	Hair or fur indicated
1	At least 4 details (nose, mouth, eyes, eyelashes, claws, etc.)
1	Four additional details
5	Total

IN THE FRAME BELOW MAKE A DRAWING OF A HOUSE OR BUILDING IN WHICH PEOPLE LIVE. MAKE THE HOUSE OR BUILDING FILL THE TOTAL SPACE. INCLUDE AS MANY PARTS OF THE BUILDING AS YOU POSSIBLY CAN.



GRADE 4 "What Children Can Learn: Buildings"

Children can learn to

Item 3 "Differentiate kinds of buildings by size, shape, details"

Item 5 "Indicate more complex architectural detail"

Item 7 "Show varied line and texture" (in building material and details)

Item 10 "Show greater sensitivity to placement of details"

Problem: Make a drawing of a house or building in which people live. Make the house or building fill the total space. Include as many parts of the building as you possibly can.

Materials: Soft drawing pencil without eraser.

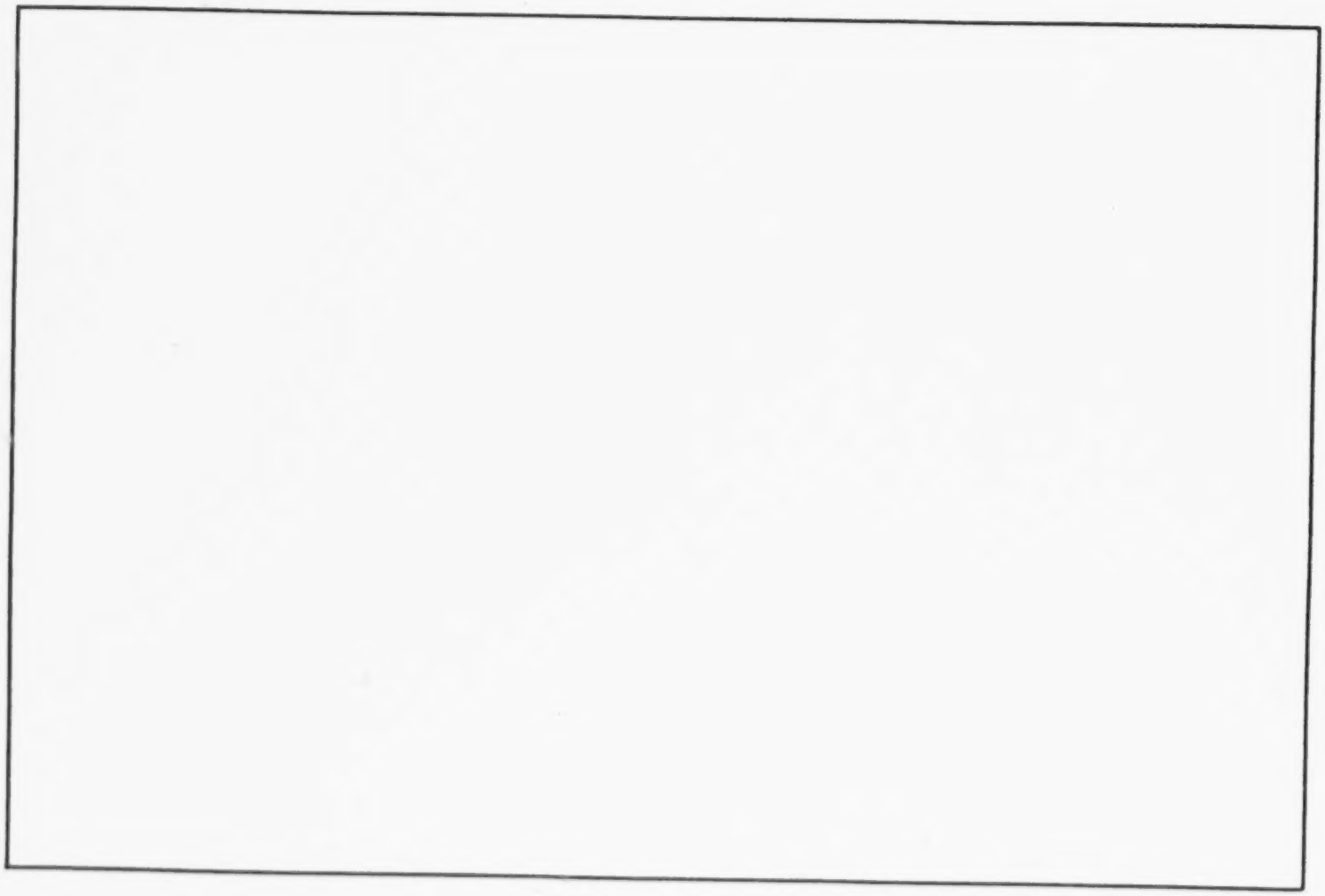
White drawing paper 8½" x 11" with instructions printed above a frame 5½" x 8½".

Scoring: Preliminary Point Scale

1	House occupies at least 3/4 of space
1	Basic structure: roof, walls, windows, doors
1	Doors, windows, chimney in logical relationship as to size and placement
1	Indication of building material
1	Richness of detail: at least 5 details (door knobs, door bell, gutter pipes, window panes)
1	At least 5 additional details
1	Evidence people live in the house or building
7	Total

IN THE FRAME BELOW MAKE A DRAWING OF AN AUTOMOBILE. MAKE THE AUTOMOBILE FILL THE TOTAL SPACE.

INCLUDE AS MANY PARTS AS YOU POSSIBLY CAN.



GRADE 5 "What Children Can Learn: Vehicles"

In addition to previous grade level learnings, children can be expected to:

Item 4 "Show more complicated and detailed exterior views"

Item 5 "Show more complicated and detailed interior views"

Problem: Make a drawing of an automobile. Make the automobile fill the total space. Include as many parts as you possibly can.

Materials: Soft drawing pencil without eraser.
White drawing paper 8½" x 11" with instructions printed above a frame 5½" x 8½".

Scoring: Preliminary Point Scale

1	Car occupies at least 3/4 of total space
1	Basic parts included: wheels, body, engine
1	At least 4 details: hub caps, fenders, tail lights
1	At least 4 additional details
1	More than 8 details
5	Total

FINAL CRITERIA FOR SCORING DRAWINGS, 1972

Using the preliminary scoring scales, the task of refinement began. The procedures were the same as those in the spring of 1971. Items were scored by two or three people, scores were compared and items were changed until we were able to reach a reliable consensus.

A scoring sheet was developed which could be used for all tests simply by placing the criteria and point scale over the vacant space at top. An example is included on page 52.

In all grades the preliminary point scale had followed the established criteria. Children were asked to "fill the total space", and the preliminary scale had included one point for this. As scoring proceeded it was decided to eliminate this point since almost all drawings occupied a major part of the space and those which did not were quite detailed and met other criteria.

In all cases the criteria were refined following considerable revisions based on agreement of several people.

GRADE 3

The animal drawings were relatively easy to score. It was difficult to agree on whether or nor hair or fur was indicated but the final point scale clarifies this.

A minimal list of details was listed with the understanding that points would be included for others.

The final point scale follows.

GRADE 3, FINAL CRITERIA FOR SCORING DRAWINGS

GRADE 3	FOUR-LEGGED ANIMAL WITH HAIR OR FUR
Point	Item
1	1. Basic form of animal, includes body, head and four legs or in a position where legs are implied.
1	2. Hair or fur <u>definitely</u> indicated by: line, pattern; shading, controlled vs. uncontrolled; texture on body, mane, ruff, tail; or definite indication of hide, as in elephant, spots on giraffe.
1	3. 3 details minimum: eyes, ears, nose, whiskers, mouth, teeth, tongue; tail, hooves, claws, toes; hip, knee; spots, mane, ruff; milk bag, sex organs; bridle, saddle, collar, bell on collar, name tag, person astride animal.
1	4. 3 additional details.
1	5. 3 additional details.
5	TOTAL

GRADE 4

Of the three items administered in 1972, greatest difficulty was encountered in scoring the drawings of houses. It was not easy to differentiate details since there was great variation in what was included. Some children showed interior views only, most exteriors only. We finally resorted to a detailed categorization of details, with the understanding that additional details might be counted for points.

The point system included a different type of cut-off: 1 point for 5 details; 1 point for 3 additional details, 8 minimum; 1 point for 4 additional details, 12 minimum.

The final criteria and point scale follows.

GRADE 4, FINAL CRITERIA FOR SCORING DRAWINGS

Roof

roof garden	TV antenna
smoke from chimney	gutters
window, lattice work, louver, or vent in roof	chimney top or detail

Window

curtains or shades	shutters
window frame	awnings
flower box	

Interior space as seen through a picture window

Interior space indicated as in X-ray or total

Exterior

design or windows on door	mail box	porch or railing
door knob	light fixtures	steps or stoop
door bell	exterior faucet	milk box or chute
house number or name	water pipe	downspouts

toys	flowers	hose or sprinkler
sidewalks	trees	driveways
garbage cans	grass	car in drive
fountain	dog	car in garage
dog house	bird	flag over door
bird house	people	fencing

GRADE 4 — A BUILDING IN WHICH PEOPLE LIVE

Point	Item
1	1. Basic structure clearly and convincingly defined: walls, roof, foundation, windows, doors, chimney. Minimum of 4 (If drawing shows unusual angle or close-up with parts convincingly implied, one point is given.)
1	2. Building material clearly and convincingly defined by line or texture. Minimum: 3 different types
1	3. 5 details. Any 5 from the list above.
1	4. 3 additional details from list above: 8 minimum.
1	5. 4 additional details from list above: 12 minimum.
5	TOTAL

GRADE 5

The drawings of automobiles included conventional passenger cars and trucks, as well as highly imaginative racers and antique models.

In working out a point scale, we found it necessary to categorize parts and to list details.

FINAL CRITERIA FOR SCORING DRAWINGS

The automobile consists of these basic parts: body, including doors and windows; front section; rear section; wheels.

Details are to be counted only if easily recognizable:

Body	Front Section	Top
Doors	Directional lights	Baggage carrier
door handles	Fender	Sirens
door hinges	Gas tank intake	Ski rack
door lock	Grill	Sun roof
inside door handles	Head lights	Roll bar
key hole	License plates	
	Radiator cap	
Windows	Engine	Exterior
curtains at windows		
rear window	Rear Section	Antenna
side vent window		Chrome strips
windshield	Brand name of car	Outside rear view mirror
windshield wiper	Fender	Horn
	Indication of trunk	Mud flaps
Wheels	License plate	Racing car parachute
air valve	License plate light	Running board
axle	Muffler	Spot light
brand name of tire	Rear vent	Trailer hitch
hub cap	Tail lights	
spokes	Tail pipe	
tire treads	Trunk handle	
	Engine	

Interior

Front seats	Dashboard	Head rests	Interior light
Gear shift	Driver	Instrument panels	Inside rear view mirror
Rear seat	Passengers	Seat belts	Steering wheel

GRADE 5 AUTOMOBILE

Point	Items
1	1. Includes basic parts: body, front and back sections, wheels, windows, doors.
1	2. At least 3 details.
1	3. 3 additional details, total 6.
1	4. 3 additional details, total 9.
1	5. 3 additional details, total 12.
5	TOTAL

Grade _____

_____
(Code)

_____
(date) (evaluator)

Revised Tabulation Sheets Used in Scoring Drawings, 1972

M	1	2	3	4	5	T
1						
2						
3						
4						
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SUMMARY

This project has given motivation to continuous development and refinement of learning specifications and assessment instruments at the elementary school level over a period of three years. All of the work, with the exception of two two-week summer work periods has been done during the regular school year by the Art Consultant with limited assistance from the Department of Research. This research involvement by the Art Consultant has been in addition to full responsibility for the Racine Art Program K-12 and for on-going curriculum development at all levels. The Art Consultant works with 36 secondary art teachers in three senior high schools and six junior high schools, with more than 600 elementary teachers in 35 elementary schools. In addition, she serves as clinical associate for the University of Wisconsin in Madison as local coordinator and supervisor of eight art interns.

Teachers and principals who have been involved in this project through individual conferences and workshops share an enthusiasm for the work accomplished to date. In it they sense greater direction for the art program and clearer and more precise learning specifications as guides to planning art lessons. Over and over we have heard the statements, "This gives us a better idea of how we should be helping children learn", "Now I see how unit planning can help", "Art work has improved since I have become more aware of what children can be expected to accomplish", "I am better able to evaluate the individual child and his work".

Teachers and principals have welcomed the pilot testing program. Many teachers see in the assessment instruments possibilities for classroom application. Results of the 1971 testing program were shared with teachers

and implications were discussed. During the course of the testing program teachers were amazed at what children can accomplish in a limited time when directions are precisely stated and all children are seriously working in a situation where concentration is demanded.

There are many implications for the secondary schools in Racine, although little formal work has been done to date. More precise formulation of objectives, greater specificity in expectations, and more objective types of assessment are areas yet to be explored on the secondary level.

This involvement to date and the results so far documented encourage continuation. In terms of effect on the art program and the work of children the project refutes the arguments of art educators who hold that involvement in behaviorally based art programs is contradictory to the spontaneous, free, creative art work expected of children.

The main purpose of this project was that of developing more precise learning specifications, assessment instruments and criteria for scoring. Analysis of data which follows was done to determine ways data might be used. The charts and graphs are of less significance than documentation of steps in development of assessment instruments and criteria for scoring.

APPENDIX I

INTERPRETATION OF DATA: ASSESSMENT, 1971
ASSESSMENT INSTRUMENTS

Although assessment instruments administered in the Spring of 1972 have been scored, analysis of data is incomplete.

Charts and graphs which follow relate to instruments administered in 1971.

MEAN I.Q. SCORES, GRADE 5

GRAPH I, Page 61

This graph indicates the significant difference in the three schools involved in testing based on I.Q. scores. I.Q. scores were collected in an attempt to determine the relationship of I.Q. to the two types of tests used: Color Tests, basically cognitive; Drawing Tests, presumed to be less related to intellectual ability and more dependent on the child's observation and awareness of surroundings.

Graph I, page 61, shows the total mean I.Q. for the three schools and the male and female scores, with females scoring at a higher level in all three schools.

COLOR FOLDERS A AND B, GRADE 5

RELATIONSHIP OF ACTUAL SCORES TO I.Q. BASED SCORES

GRAPH II, Page 62

This graph shows the relationship of actual scores on Color Folders A and B to I.Q. based scores. The I.Q. based scores were determined through the use of a prediction equation arrived at by combining I.Q. and Color Folder scores from all three schools. The prediction equation was then used separately for each of the three schools and an I.Q. based score was arrived at in each of the three schools. The graph compares the predicted I.Q. based score to the actual score achieved at each school. In all graphs School A is shown in green, School B in blue, and School C in red. Whenever the actual score is compared to the I.Q. based score, the first column above each school is the I.Q. based score.

The Color Tests were basically cognitive. This is supported when looking at the relationship between the predicted score and the actual score. In Color Folder A, Schools B and C with the higher I.Q. scores reached or exceeded the expected. School A, with the lower I.Q. did not reach the expected. When comparing Color Folder A to Color Folder B it appears that Color Folder B was the more difficult of the two, since in no case was the expected score reached. School A is identified as a school where less emphasis is placed on art, and it is also noted that the I.Q. scores are considerably lower than in Schools B and C.

COLOR CIRCLE AND DRAWING TESTS, GRADE 5

RELATIONSHIP OF ACTUAL SCORES TO I.Q. BASED SCORES

GRAPH III, Page 63

Scores on the Color Circle Test, page 63, indicate that children in School A are considerably below expectation, while children in Schools B and C reached above grade level expectations. Whether or not performance is the result of the I.Q. score or the art program is a question.

Results of the Drawing Test, page 63, show that children in School A achieved slightly above expectation, children in School C exceeded grade level expectation, children in School B, with higher I.Q. scores, scored below grade level expectations. The Drawing Test, which was basically a non-verbal, non-cognitive problem, involved observation and imagination of children, rather than factual knowledge. This implies that children who do not perform well on an I.Q. test which is basically cognitive and verbal, may do very well on a drawing test.

MEAN SCORES: COLOR CIRCLE, GRADE 5

GRAPH IV, Page 64

This graph shows mean scores on the Color Circle Test for males, females and the whole group in Schools A, B, and C.

COLOR FOLDERS

Two Color Folder Tests were developed and administered, designated as Color Folder A, 7 points possible, and Color Folder B, 6 points possible.

Color Folder Test A was administered to half of the children in each school, Color Folder B to the other half.

MEAN SCORES: COLOR FOLDER A, GRADE 5

GRAPH V, Page 65

Mean scores on Color Folder A for males, females and totals within Schools A, B, and C are shown on this graph.

MEAN SCORES: COLOR FOLDER B, GRADE 5

GRAPH VI, Page 66

This graph shows mean scores on Color Folder B for males, females and totals within Schools A, B, and C.

MEAN SCORES: DRAWING TESTS, GRADE 5

GRAPH VII, Page 67

Males, females and total scores for each of the three schools: A, B, C, are shown on this graph.

It should be noted that the interpretations made when looking at the I.Q. based scores on Graphs I, II and III are supported by scores on Graphs IV, V, VI and VII.

There is certainly less variation between the three schools on Graph VII, Drawing Test, than exists on any of the other three graphs.

COLOR CIRCLE TESTS, GRADE 5

GRAPHS VIII, IX, and X, Pages 68, 69 and 70

These graphs show the percentage of children able to place primary, secondary and tertiary colors on a standard color circle. Again, the relationship of the Color Circle Test to the cognitive ability of the children can be seen. School B, the school with the highest mean I.Q., scored higher and has a higher percentage of children who are able to perform all of the tasks than either of the other schools. School C, with a higher mean I.Q., exceeds School A.

PERCENTAGE OF CHILDREN RESPONDING TO ITEMS ON COLOR FOLDERS A AND B, GRADES 3, 4, 5

CHART XI, Page 71

CHART XII, Page 72

These charts constitute an item analysis of responses to items on Color Folders A and B, grades tested, all schools.

ITEM ANALYSIS, DRAWING TEST, GRADES 3, 4, 5

GRAPH XIII, Page 73, Grade 3

GRAPH XIV, Page 74, Grade 4

GRAPH XV, Page 75, Grade 5

The graphs show percentage of children scoring on each of the items in assessment criteria for children in Grades 3, 4, 5, Schools A, B, C.

APPENDIX II

CRITERIA FOR SCORING DRAWINGS, 1971, GRADE 5

Pages 76-85

Photographs showing acceptable, borderline, and unacceptable responses for each of the ten items.

In working out a point system for scoring drawings, it was decided that illustrations would be helpful. This procedure is explained on page 26.

APPENDIX III

REVISED GRADE LEVEL EXPECTATIONS, 1972

Pages 86-91

As work on assessment has progressed, the need for refinement of grade level expectations has become increasingly obvious.

Material included in Appendix III is in first draft form and relates to page 13 of Art for Elementary Schools:

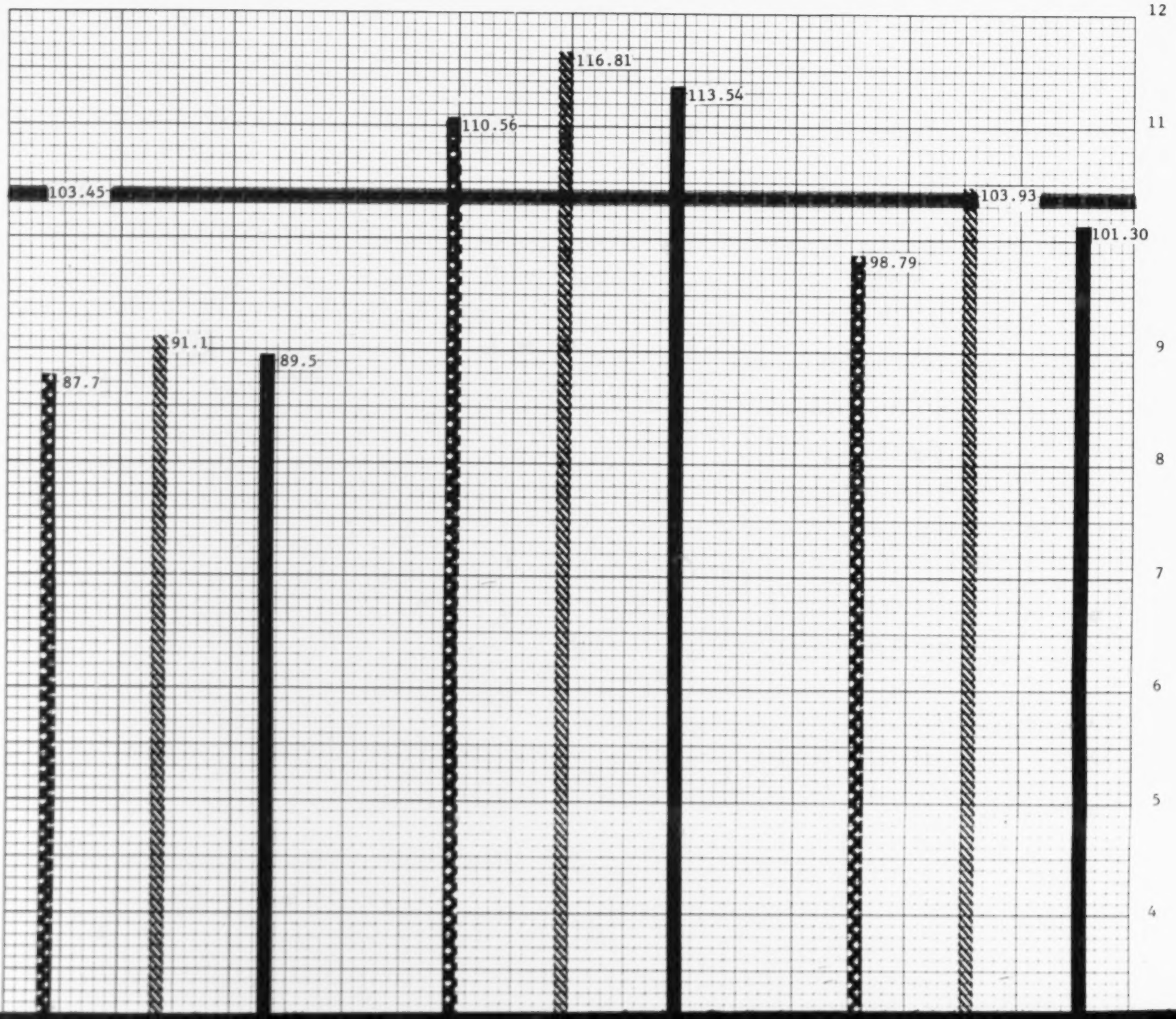
Children can learn to

> derive ideas for art from the real and imagined world, from their experiences, memories, and fantasies.

Included are grade level expectations for subject matter:

What Children Can Learn:	People	Animals	Plants
	Buildings	Vehicles	Machines

It is intended that grade level expectations will be developed for The Grammar of Art, and Materials of Art.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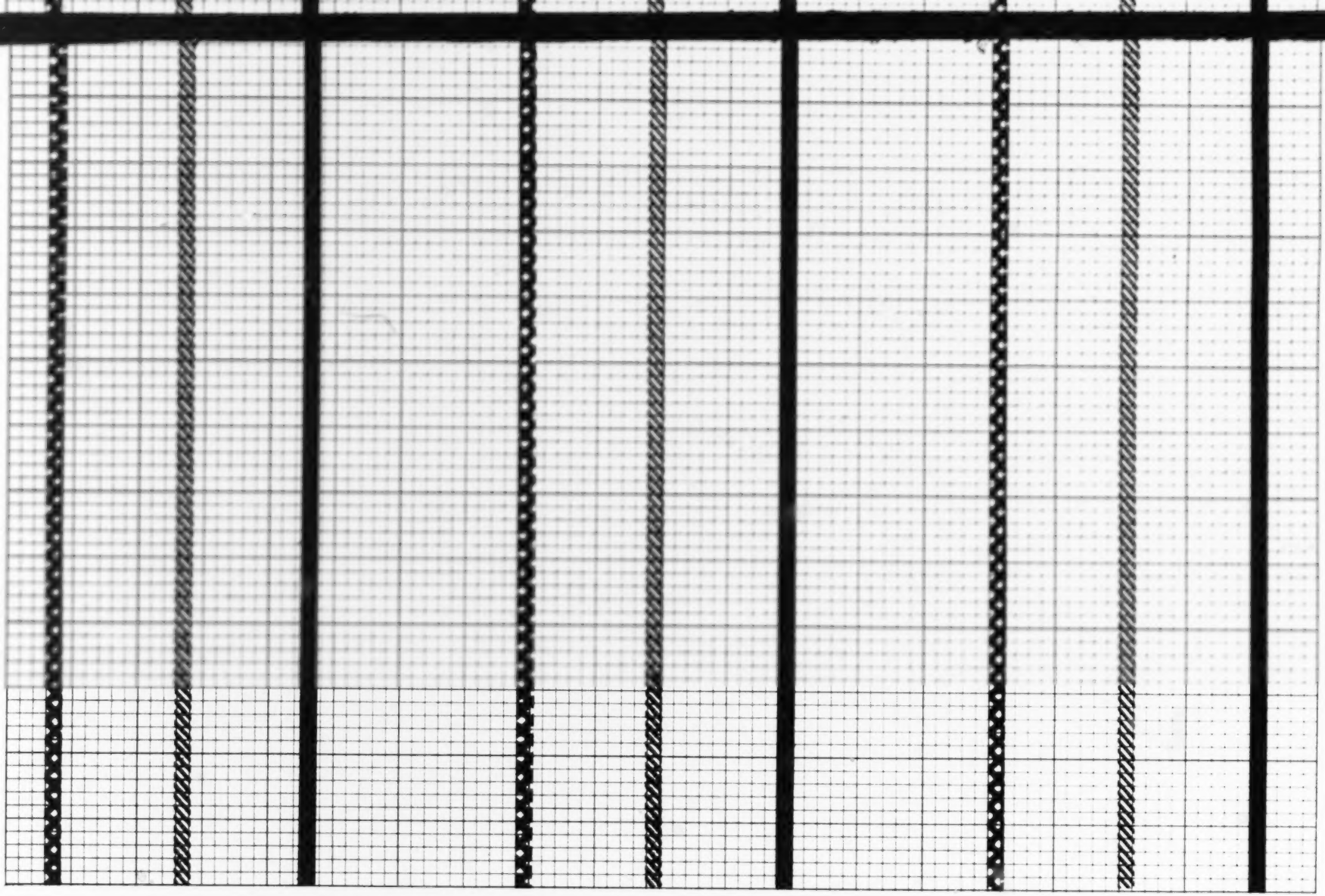
11
9
8
7
6
5
4
103.45
87.7
91.1
89.5
110.56
116.81
113.54
98.79
103.93
101.30



M F T M F T M F T

SCHOOL A SCHOOL B SCHOOL C

MEAN I Q SCORES

MALE

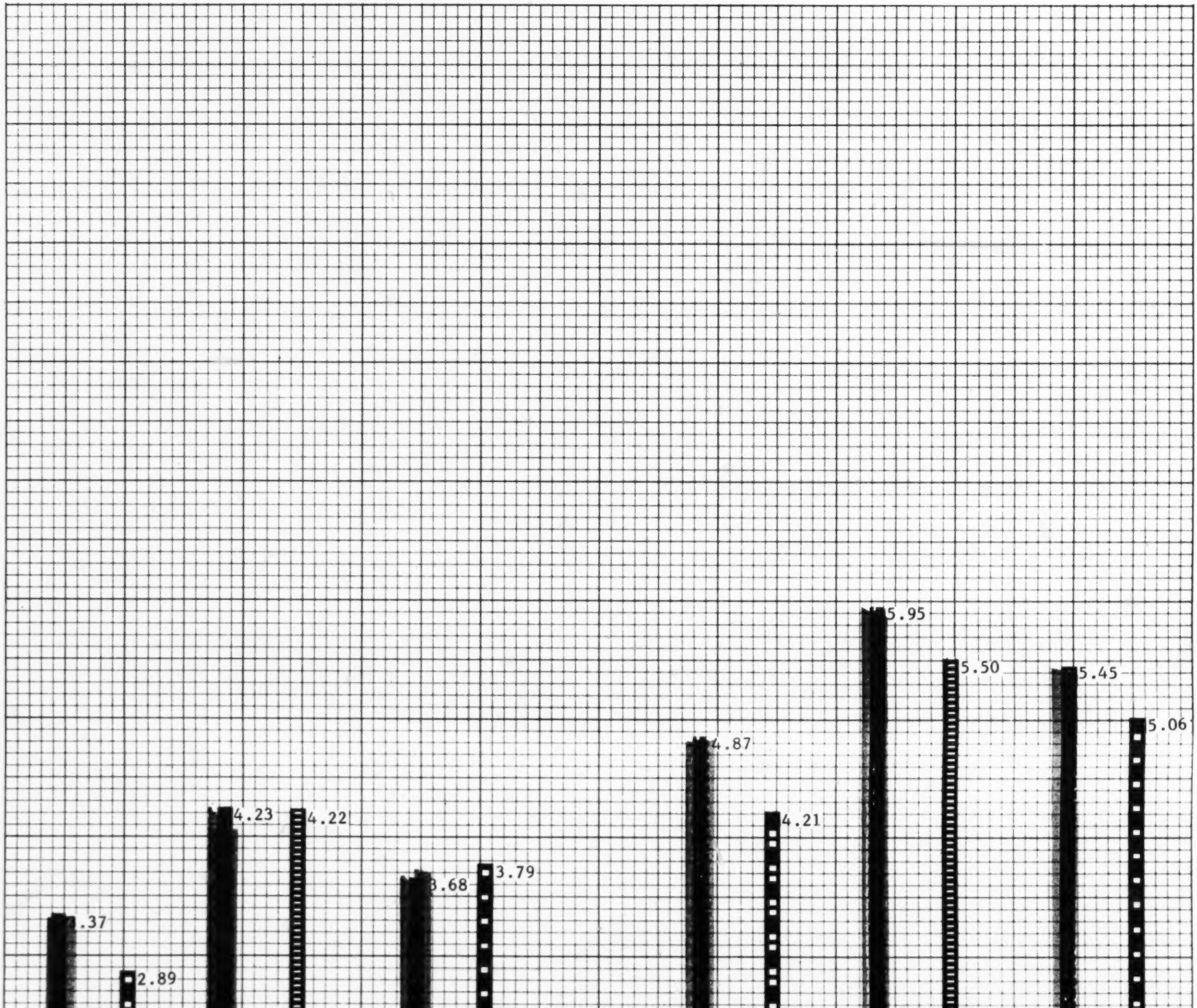
FEMALE

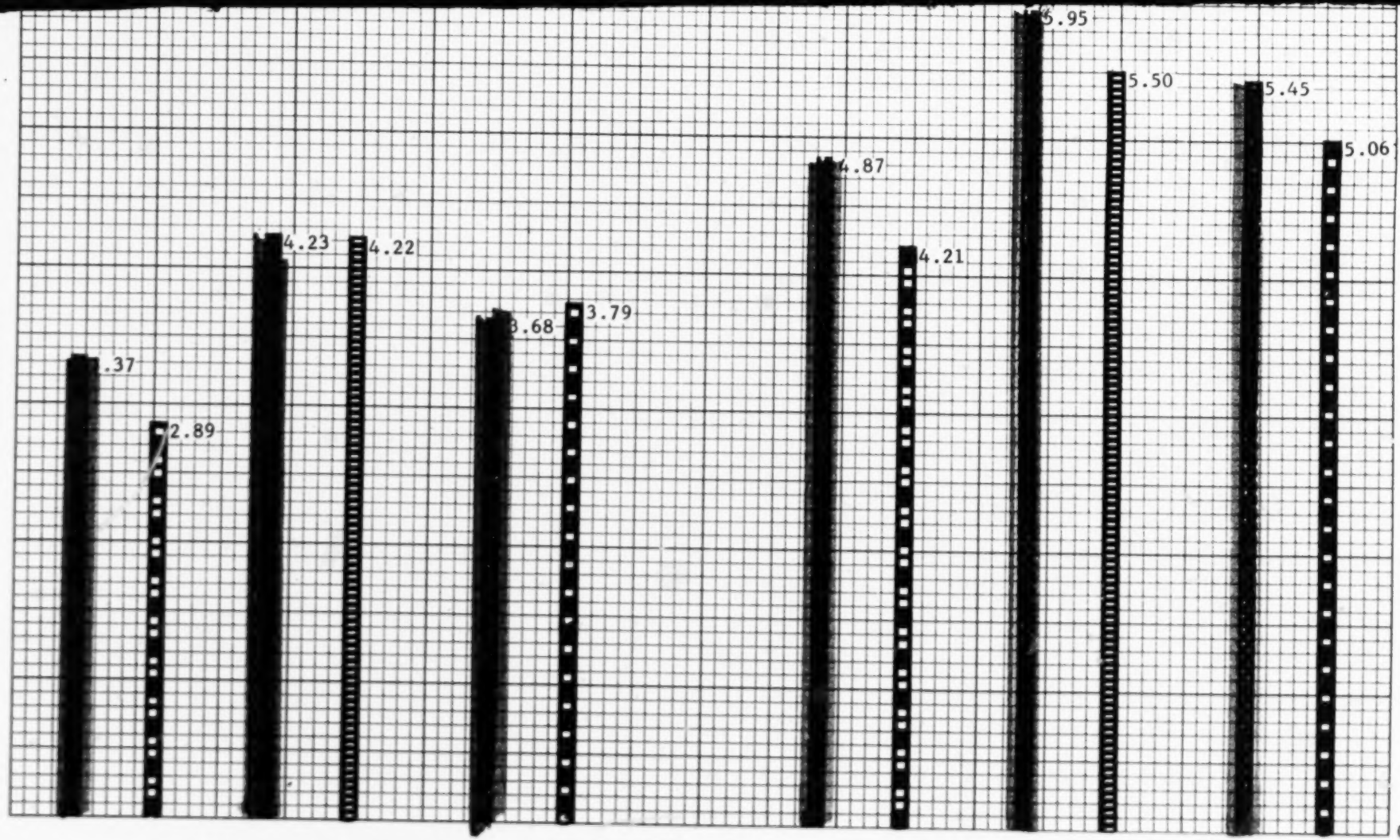
TOTAL

TOTAL MEDIAN

GRADE 5

GRAPH I


.37
2.89
4.23
4.22
3.68
3.79
4.87
4.21
5.95
5.50
5.45
5.06
9
8
7
6
5
4
3



COLOR FOLDER A

COLOR FOLDER B

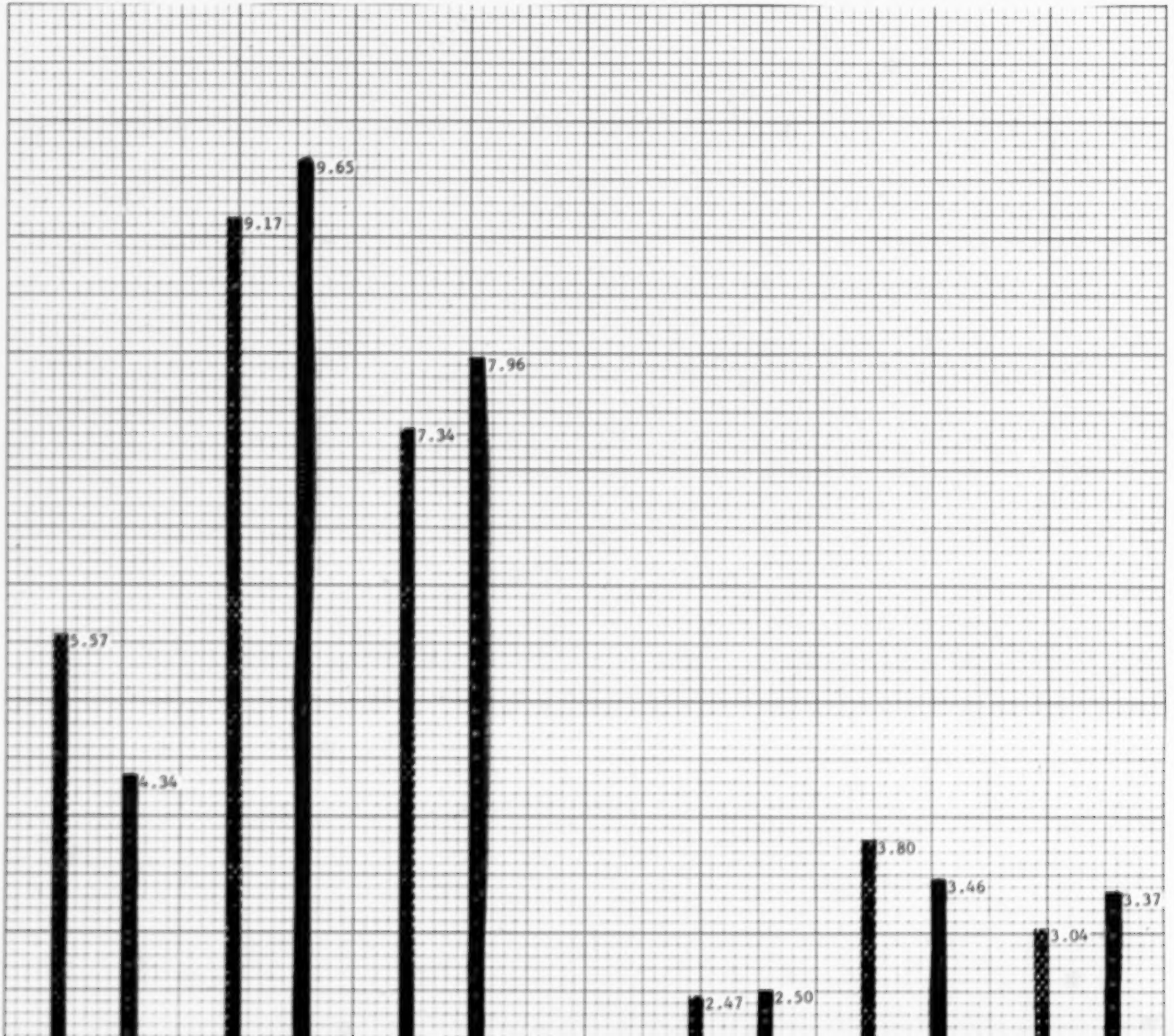
RELATIONSHIP OF ACTUAL SCORES TO I Q BASED SCORES

ACTUAL SCORES

I Q BASED SCORES

GRADE 5

GRAPH 11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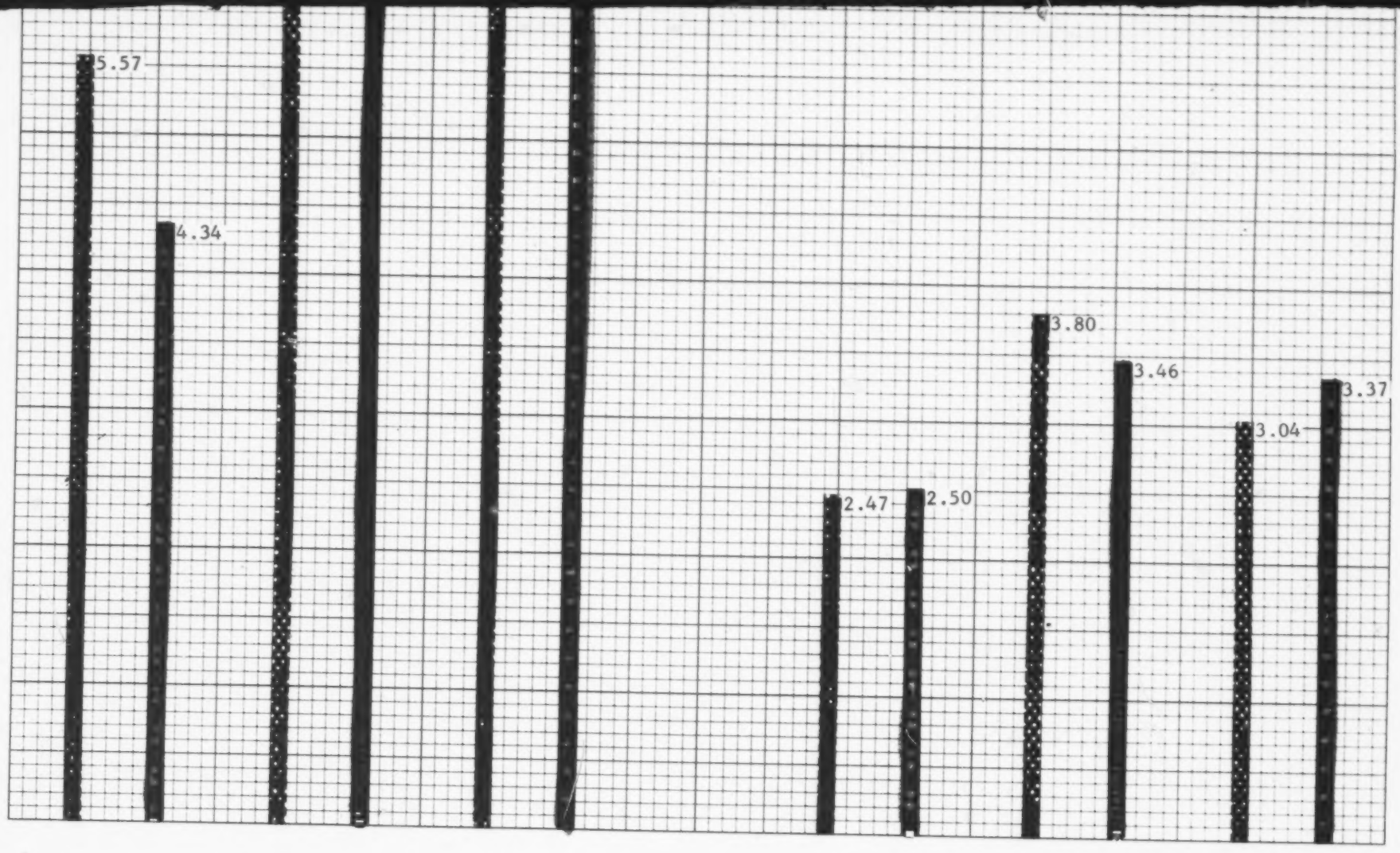
9.17
7.96
7.34
5.57
4.34
3.80
3.46
3.37
3.04
2.50
2.47
9
8
7
6
5
4
3



SCHOOL A SCHOOL B SCHOOL C

COLOR CIRCLE

SCHOOL A SCHOOL B SCHOOL C

DRAWING TEST

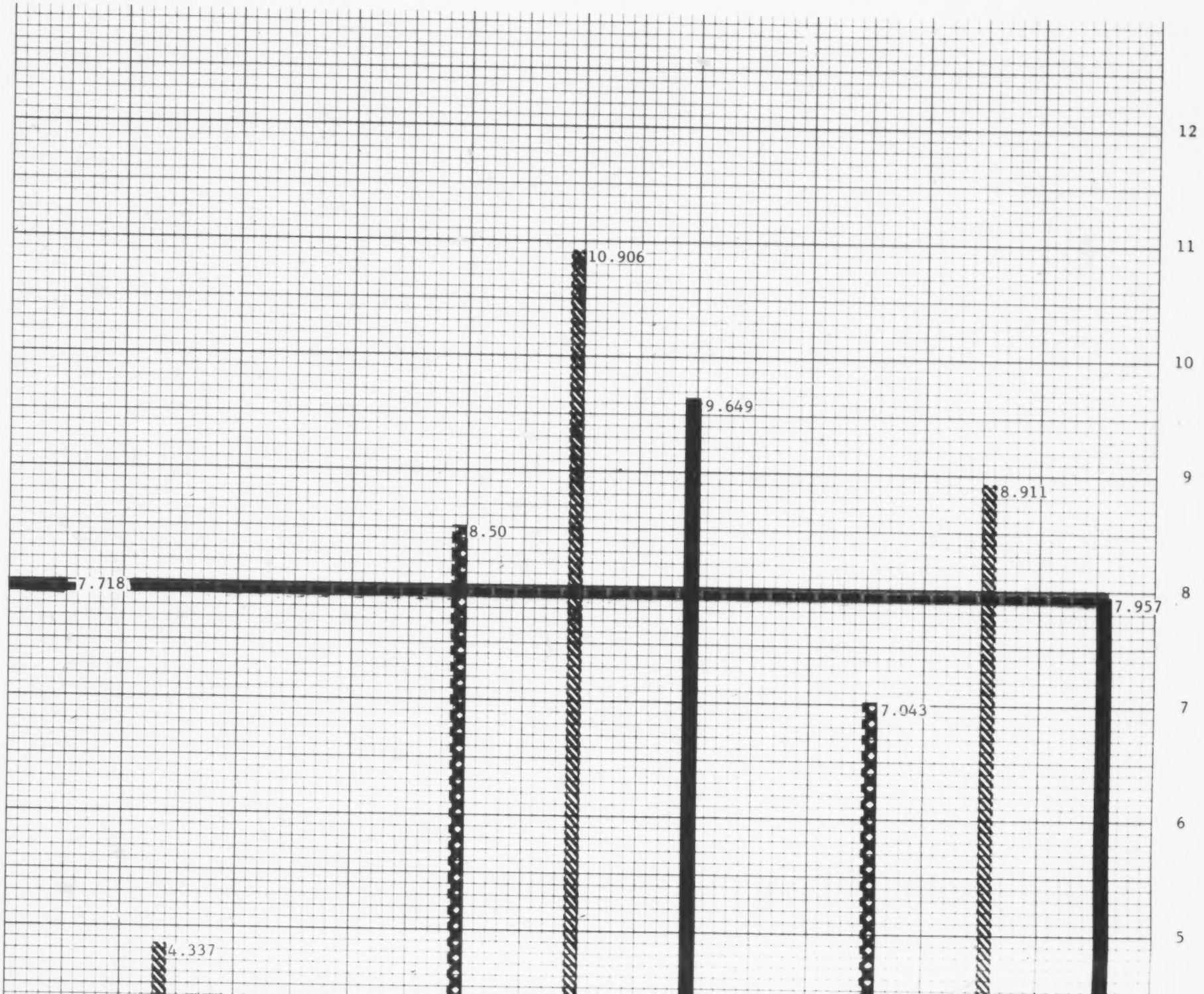
RELATIONSHIP OF ACTUAL SCORES TO I Q BASED SCORES

ACTUAL SCORES

I Q BASED SCORES

GRADE 5

GRAPH III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9
8
7
6
5
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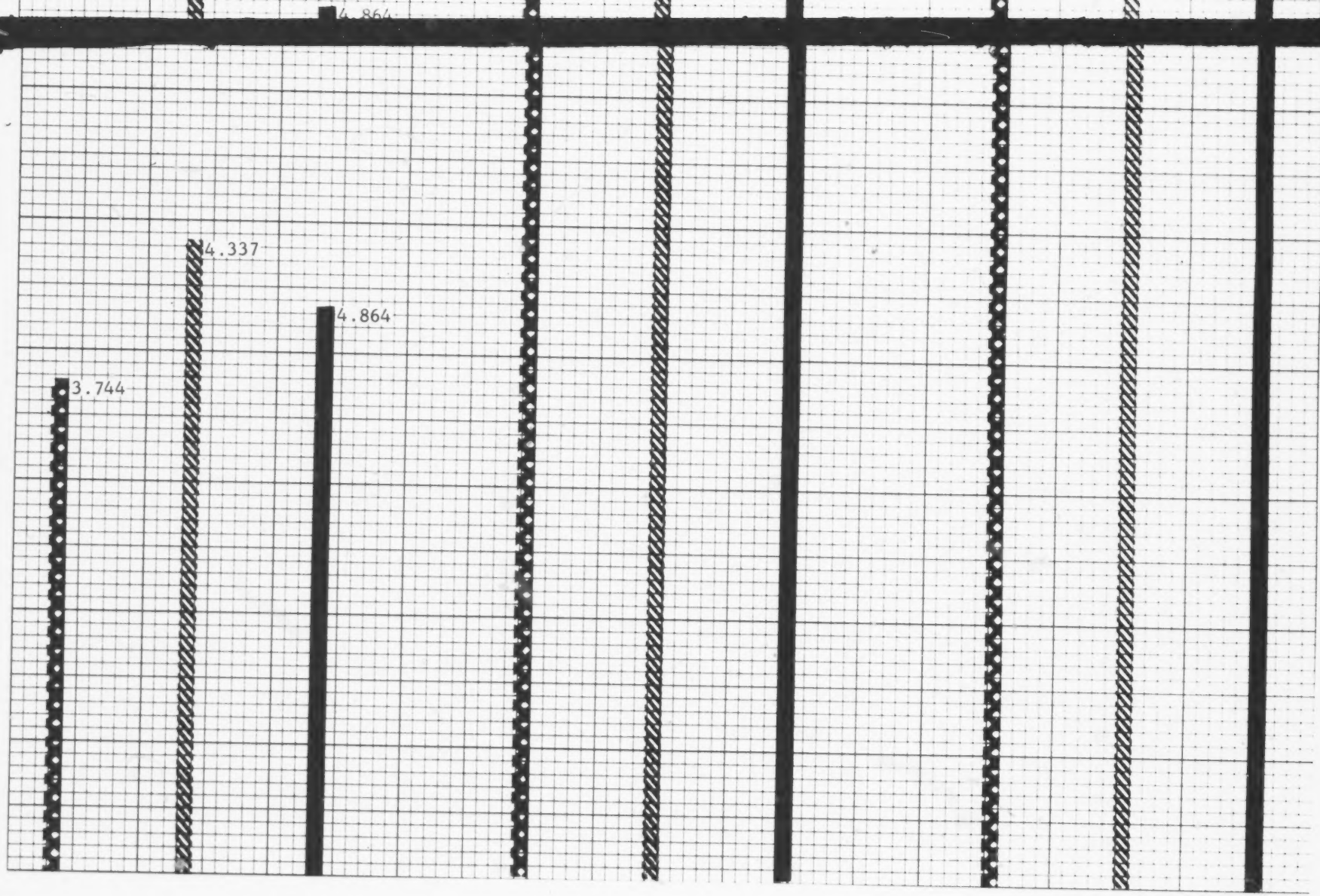
9.649
8.911
8.50
7.718
7.957
7.043
4.337



M F T M F T M F T

SCHOOL A SCHOOL B SCHOOL C

MEAN SCORES COLOR CIRCLE

MALE

FEMALE

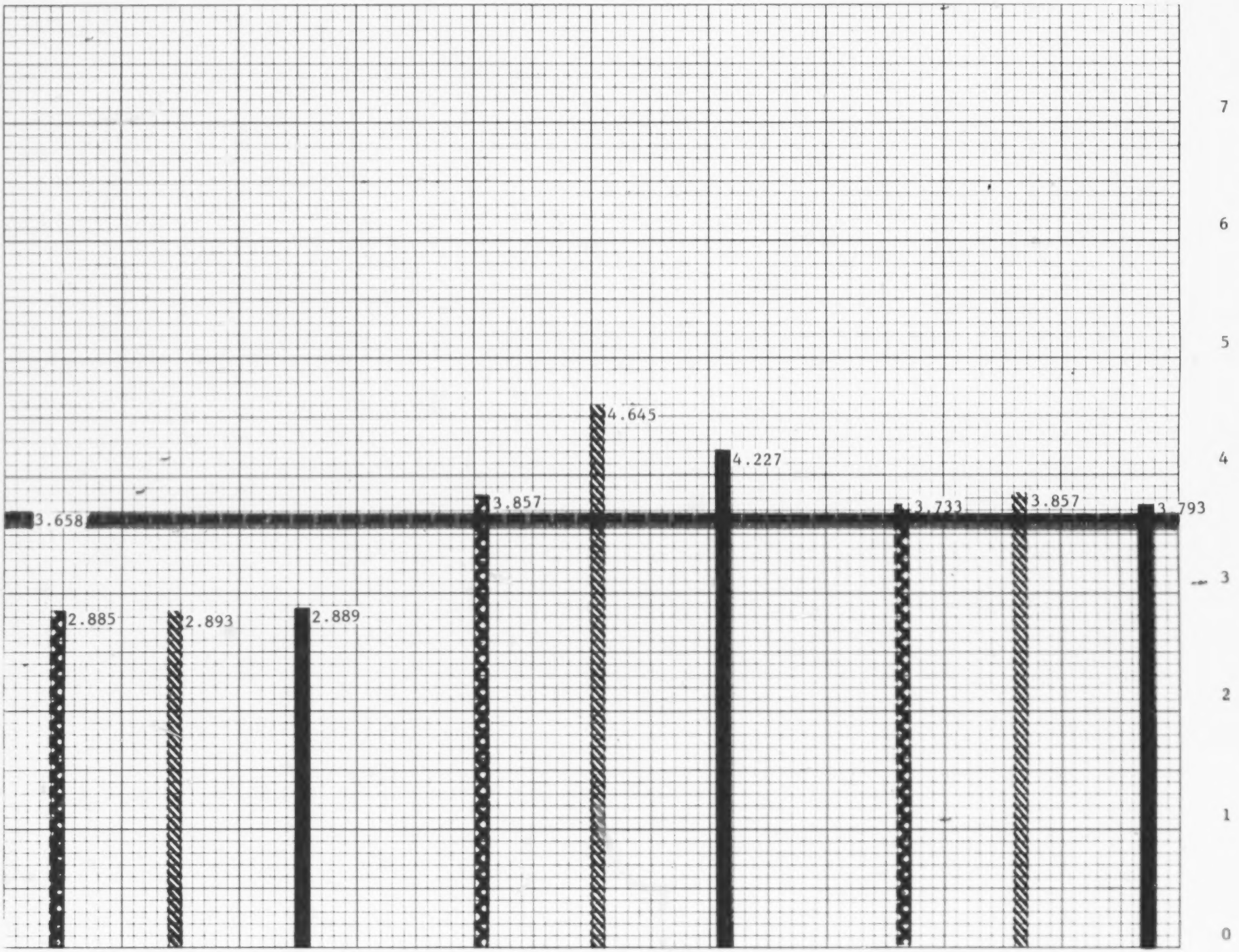
TOTAL

TOTAL MEDIAN

POINTS POSSIBLE: 12

GRADE 5

GRAPH IV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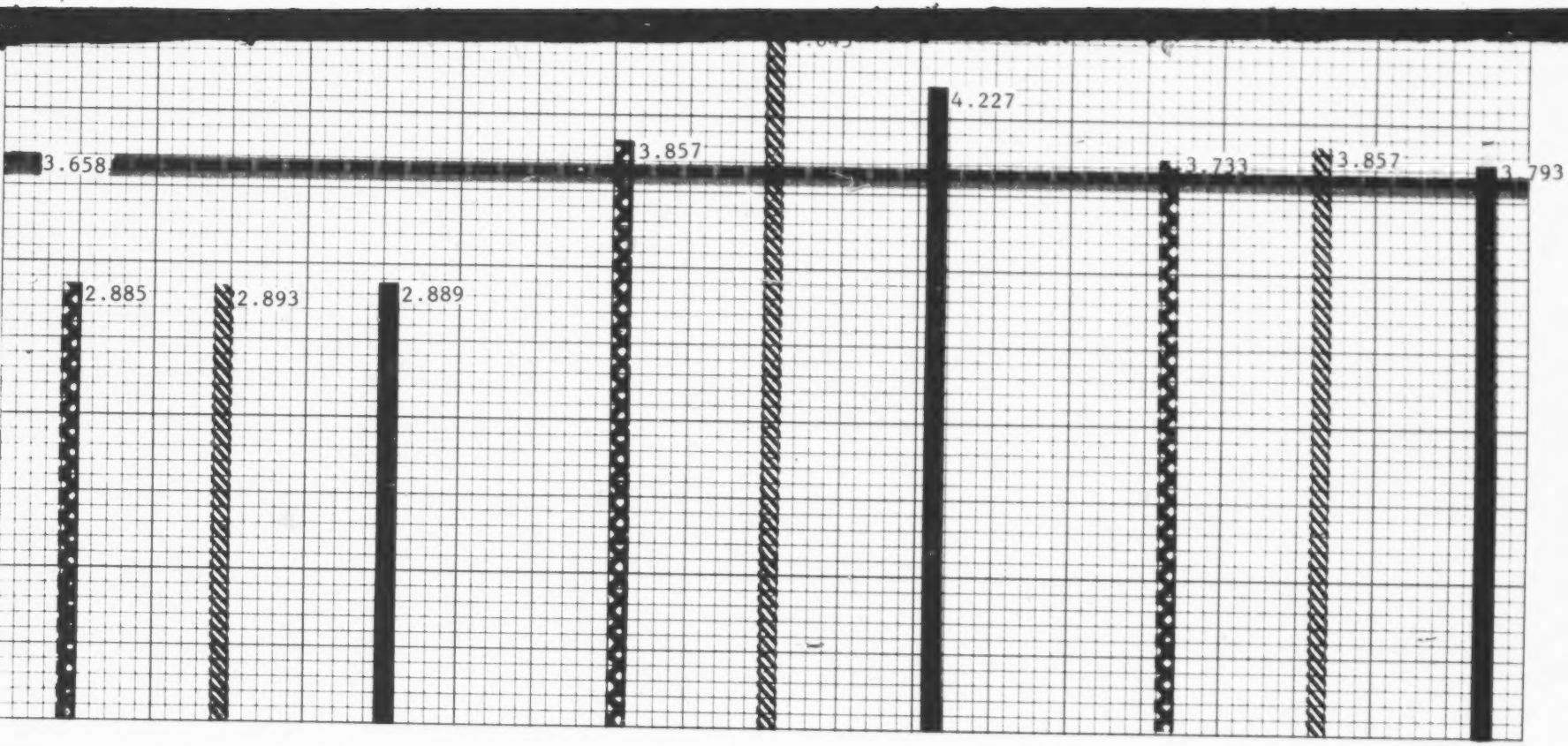
6
5
4
3
2
1
0
3.658
2.885
2.893
2.889
3.857
4.645
4.227
3.733
3.857
3.793
M
F
T
M
F
T
M
F
T
SCHOOL A
SCHOOL B
SCHOOL C

SCHOOL A SCHOOL B SCHOOL C



M F T M F T M F T

SCHOOL A SCHOOL B SCHOOL C

MEAN SCORES COLOR FOLDER A

MALE

FEMALE

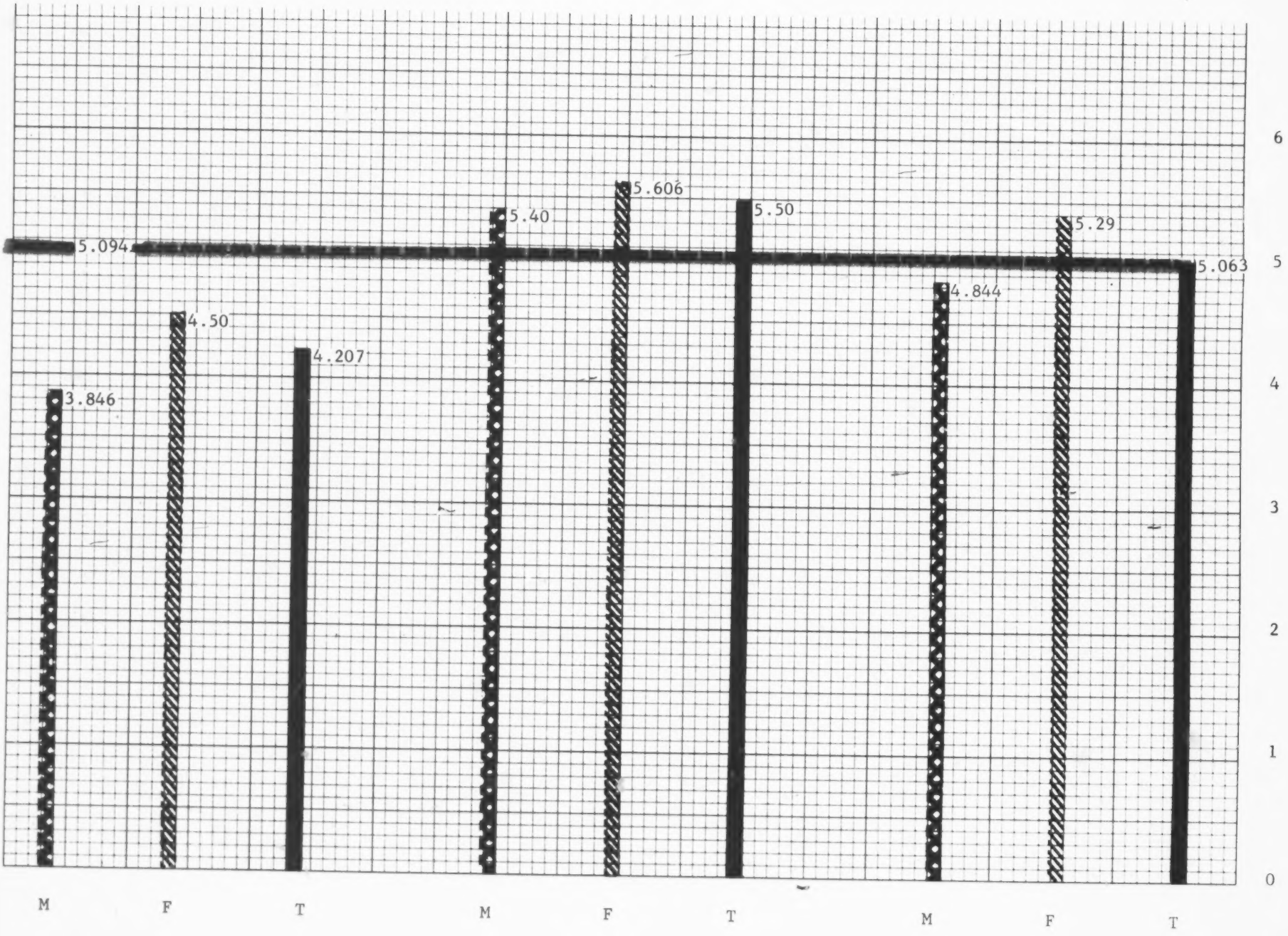
TOTAL

TOTAL MEDIAN

POINTS POSSIBLE: 7

GRADE 5

GRAPH V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3.846
4.50
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5.40
5.606
5.50
4.844
5.29
5.063
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5
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2
1
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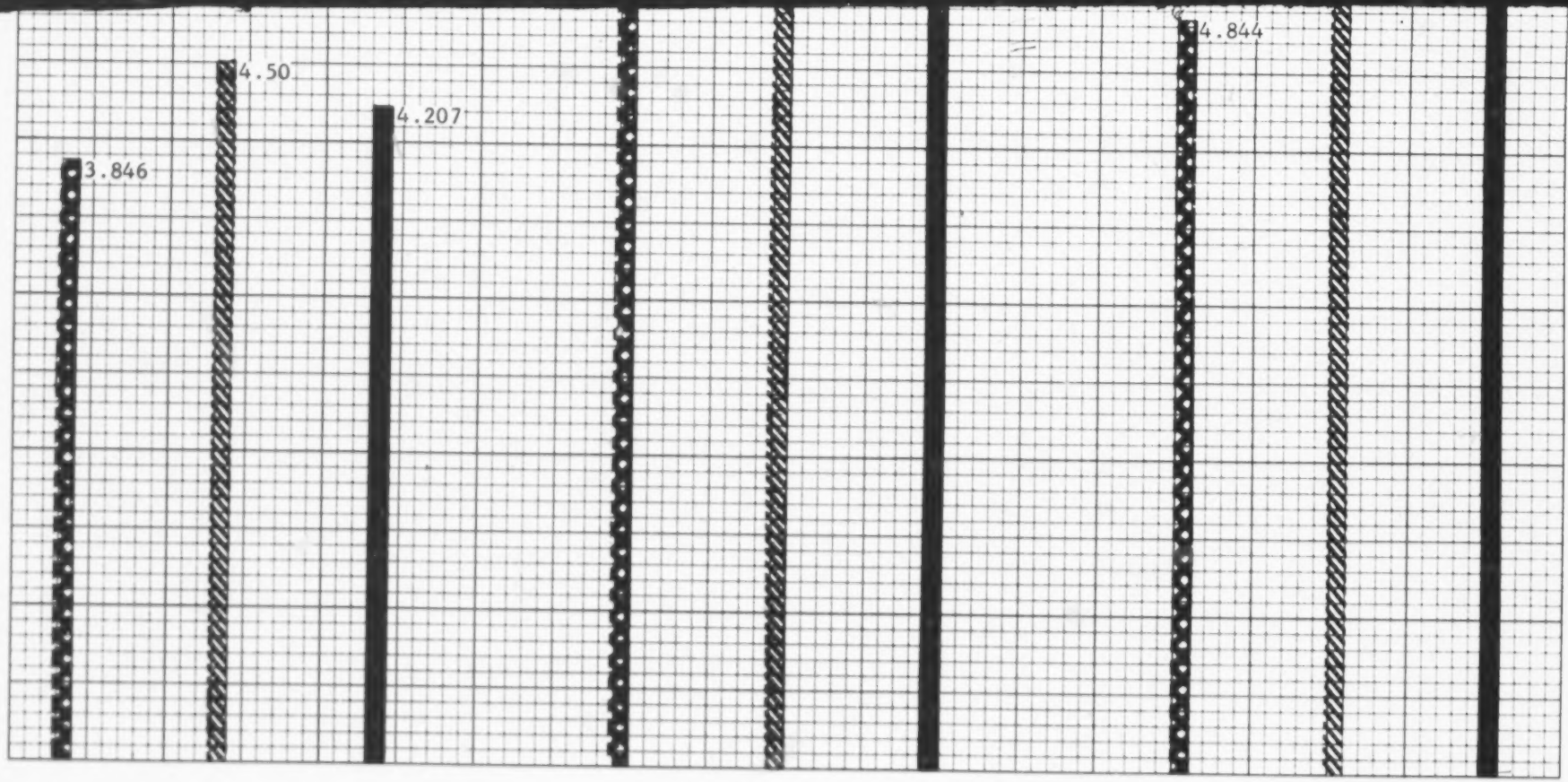
T
M
F
T
M
F
T



MEAN SCORES COLOR FOLDER B

MALE

FEMALE

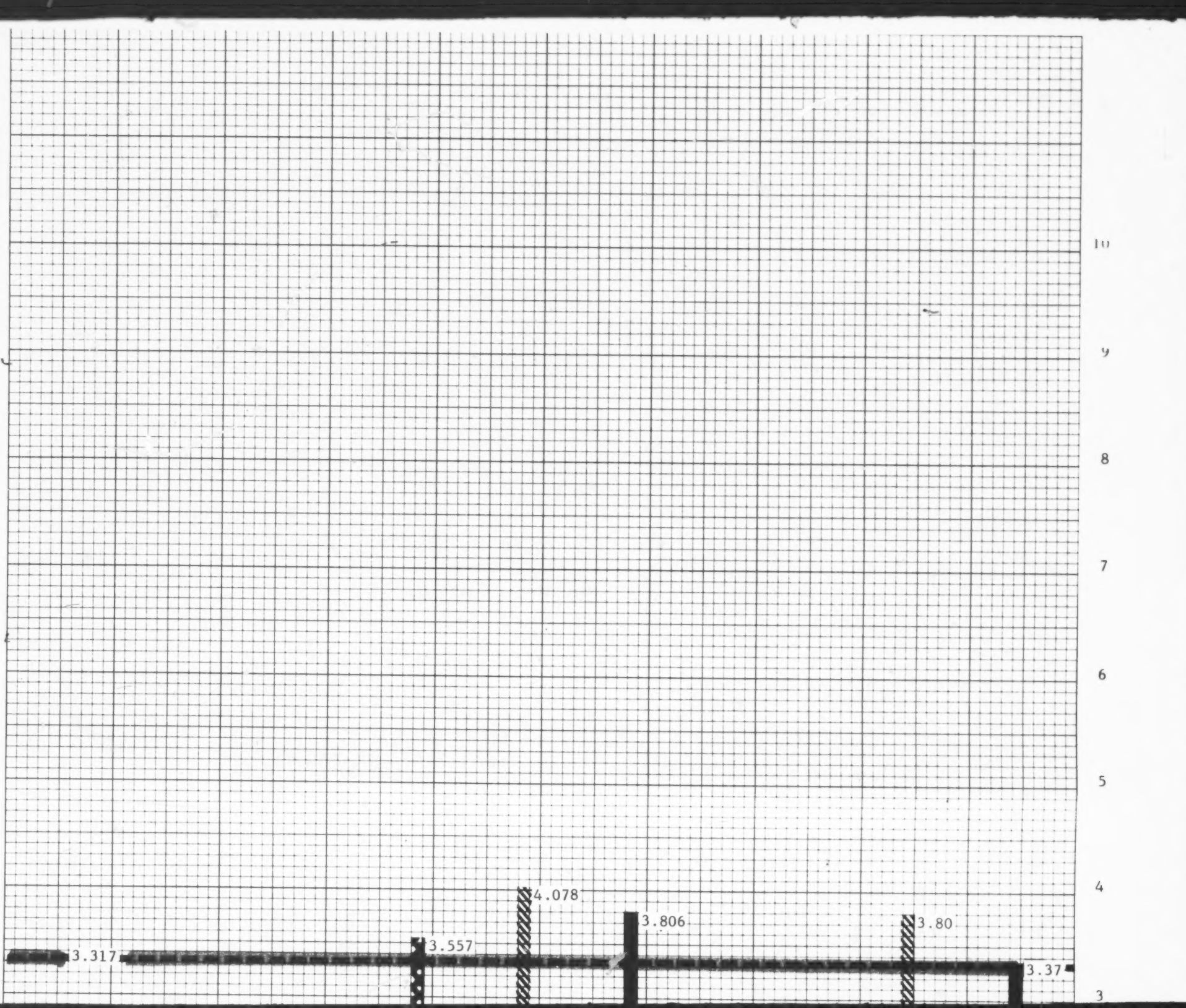
TOTAL

TOTAL MEDIAN

POINTS POSSIBLE: 6

GRADE 5

GRAPH VI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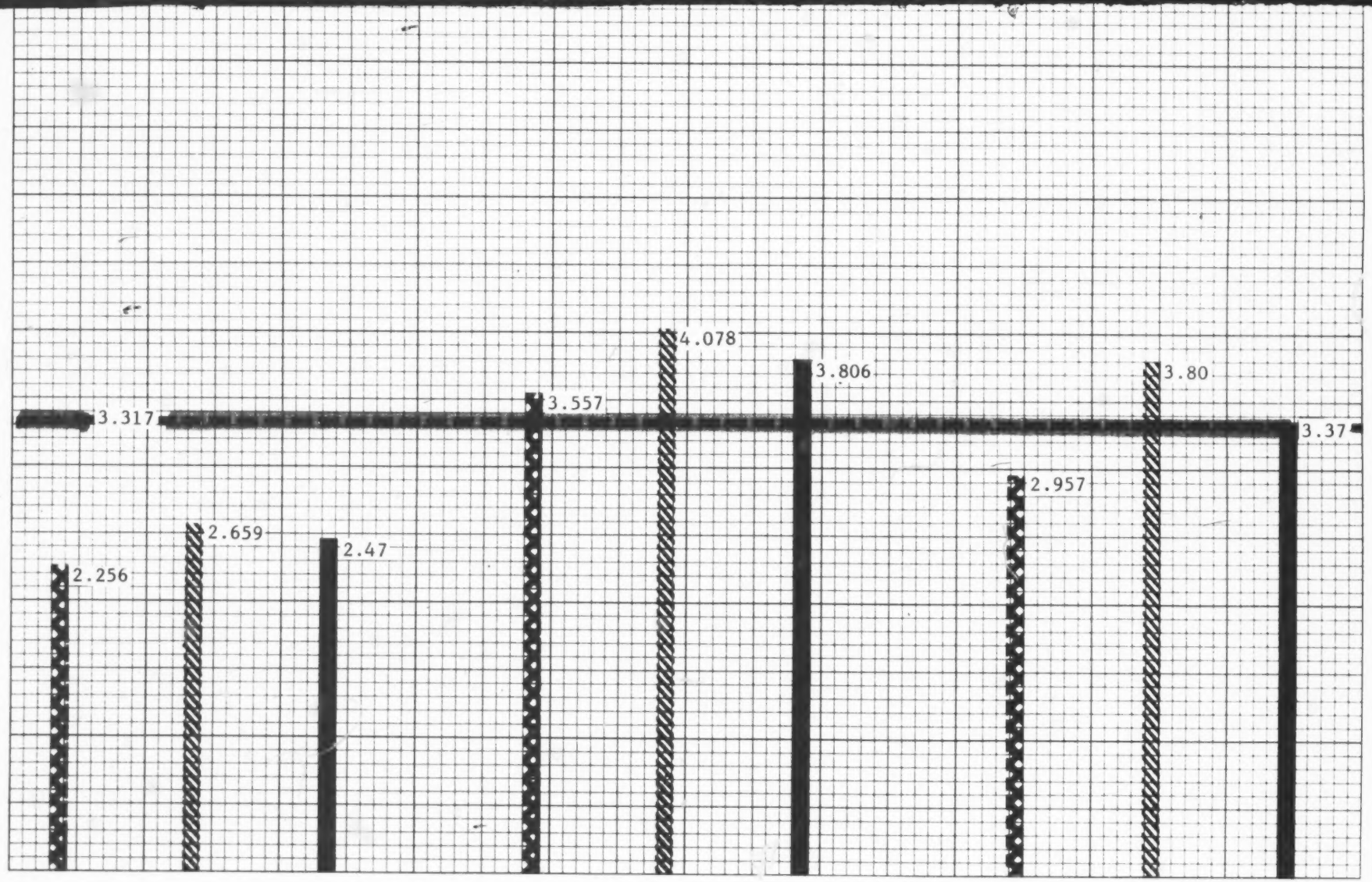
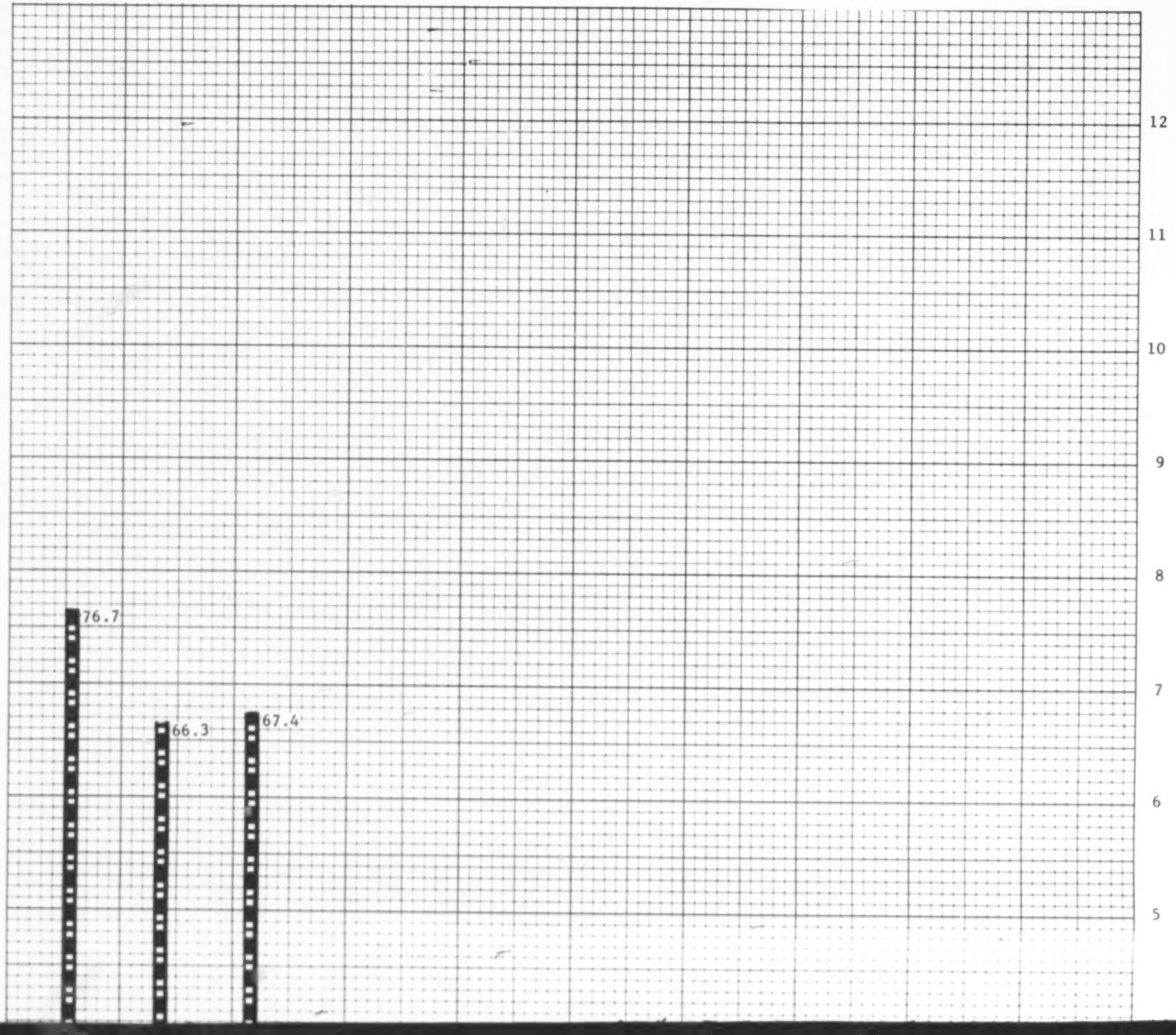
9
8
7
6
5
4
3
4.078
3.806
3.80
3.557
3.317
3.37


6
5
4
3
2
1
0
3.317
2.256
2.659
2.47
3.557
4.078
3.806
2.957
3.80
3.37
M F T
SCHOOL A
M F T
SCHOOL B
M F T
SCHOOL C
MEAN SCORES DRAWINGS
MALE
FEMALE
TOTAL
TOTAL MEDIAN
POINTS POSSIBLE: 10
GRADE 5

GRAPH VII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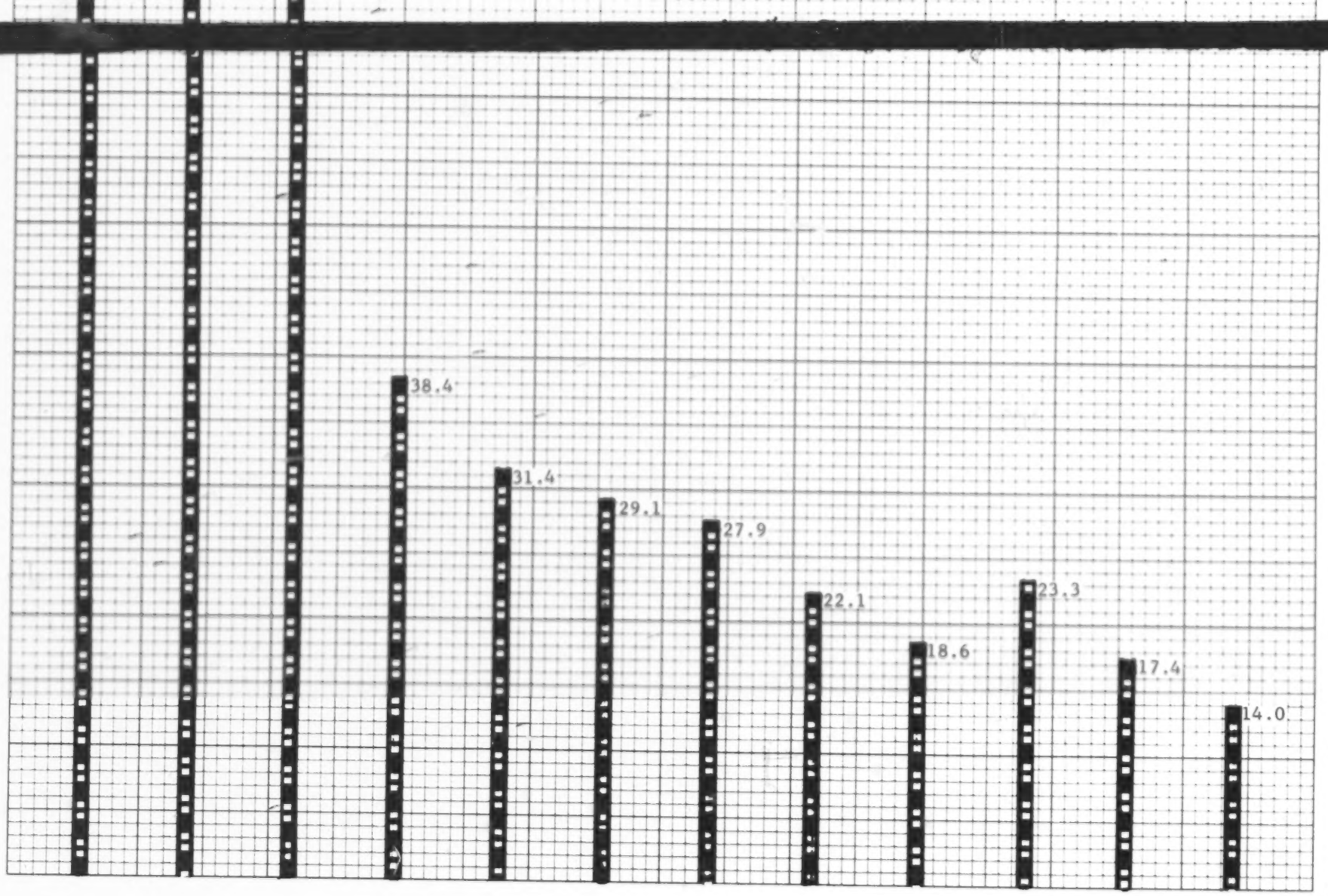
10
9
8
7
6
5
76.7
66.3
67.4



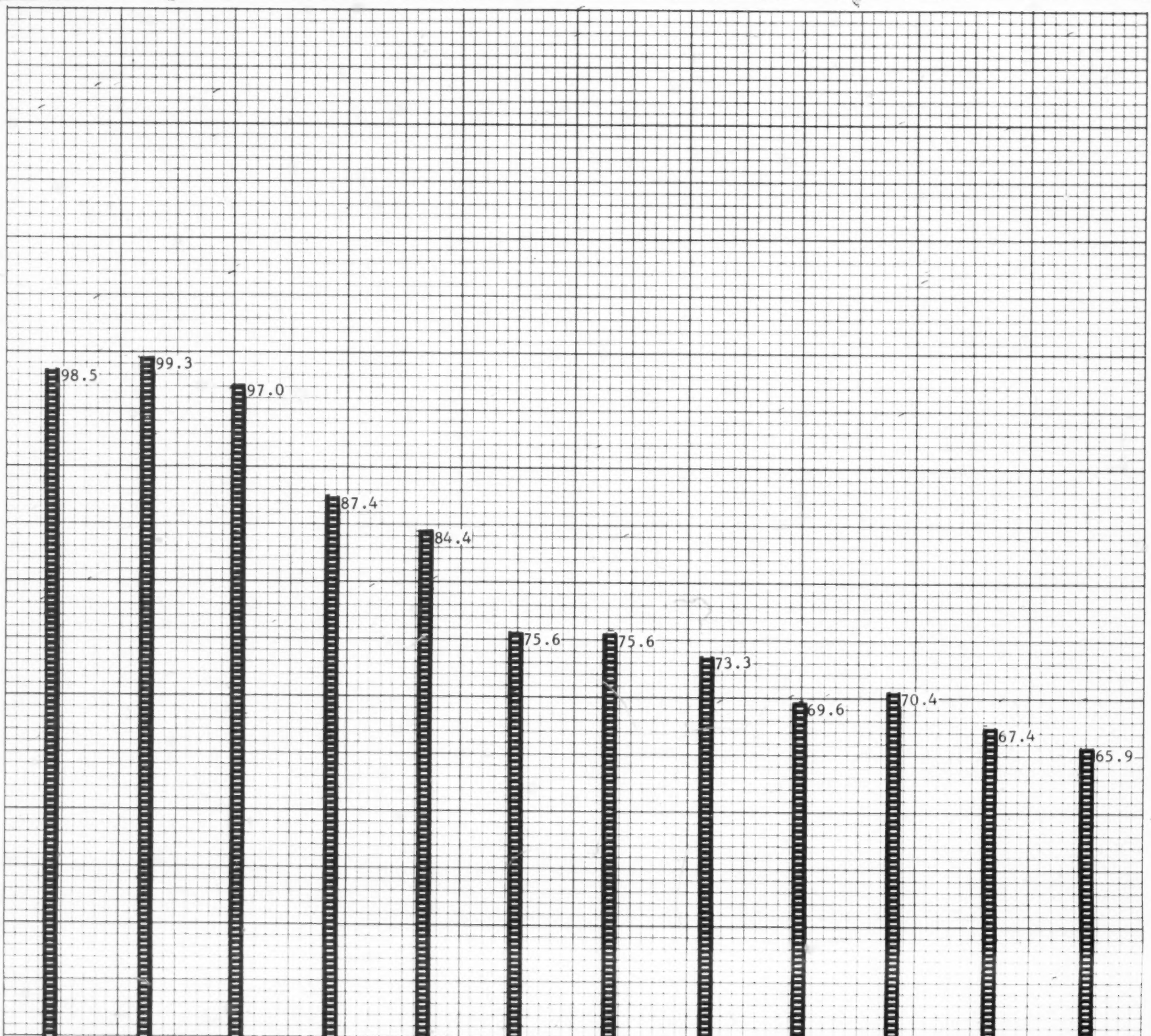
SCHOOL A COLOR CIRCLE

GRADE 5

ALL STUDENTS POINTS POSSIBLE: 12

Graph shows percentage of students able to place primary, secondary and tertiary colors on a standard color circle.
Test administered Spring, 1971

GRAPH VII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99.3
97.0
87.4
84.4
75.6
75.6
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69.6
70.4
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11
10
9
8
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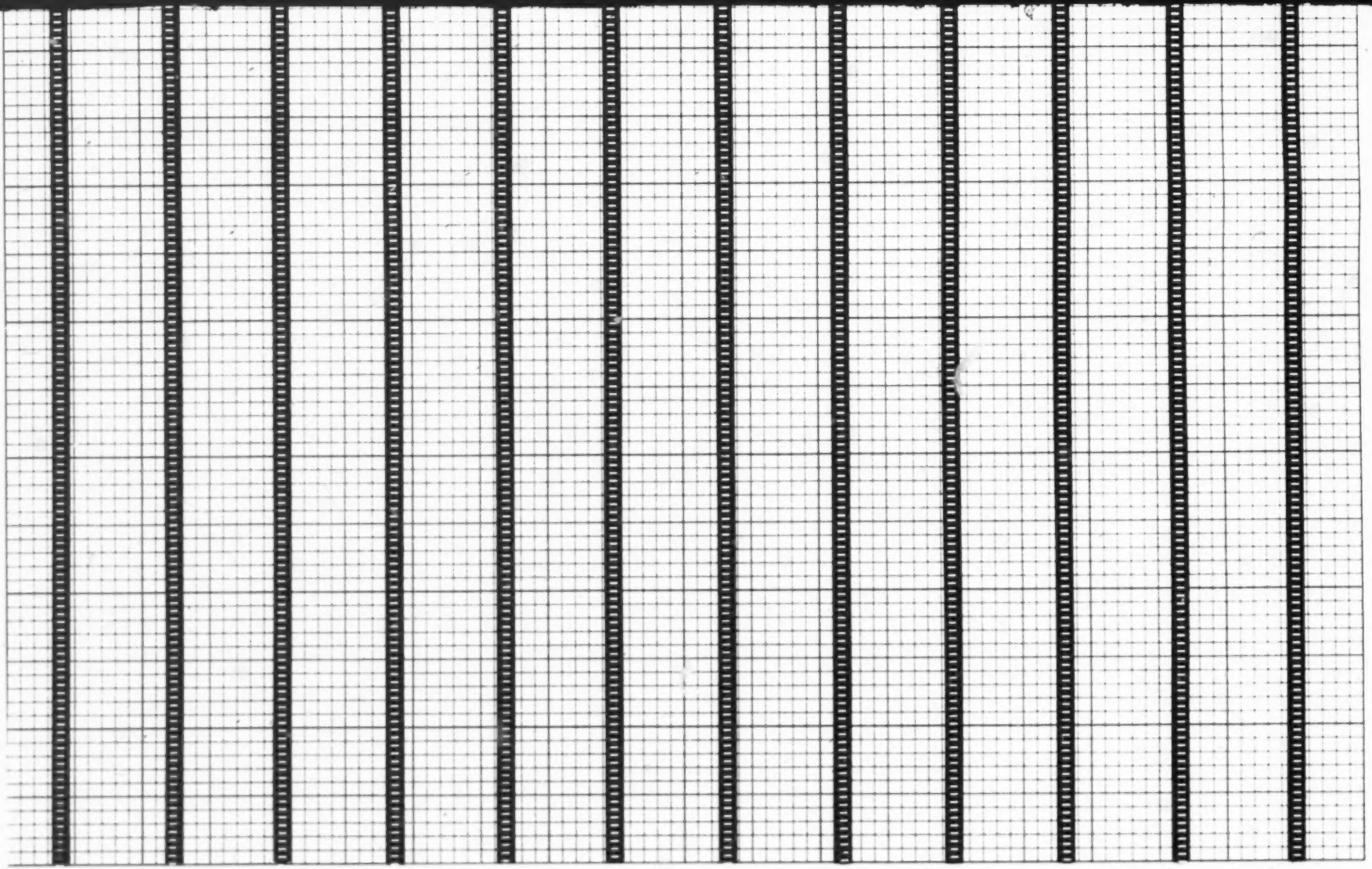
6
5
4



R Y B O G V RO YO YG BG BV RV

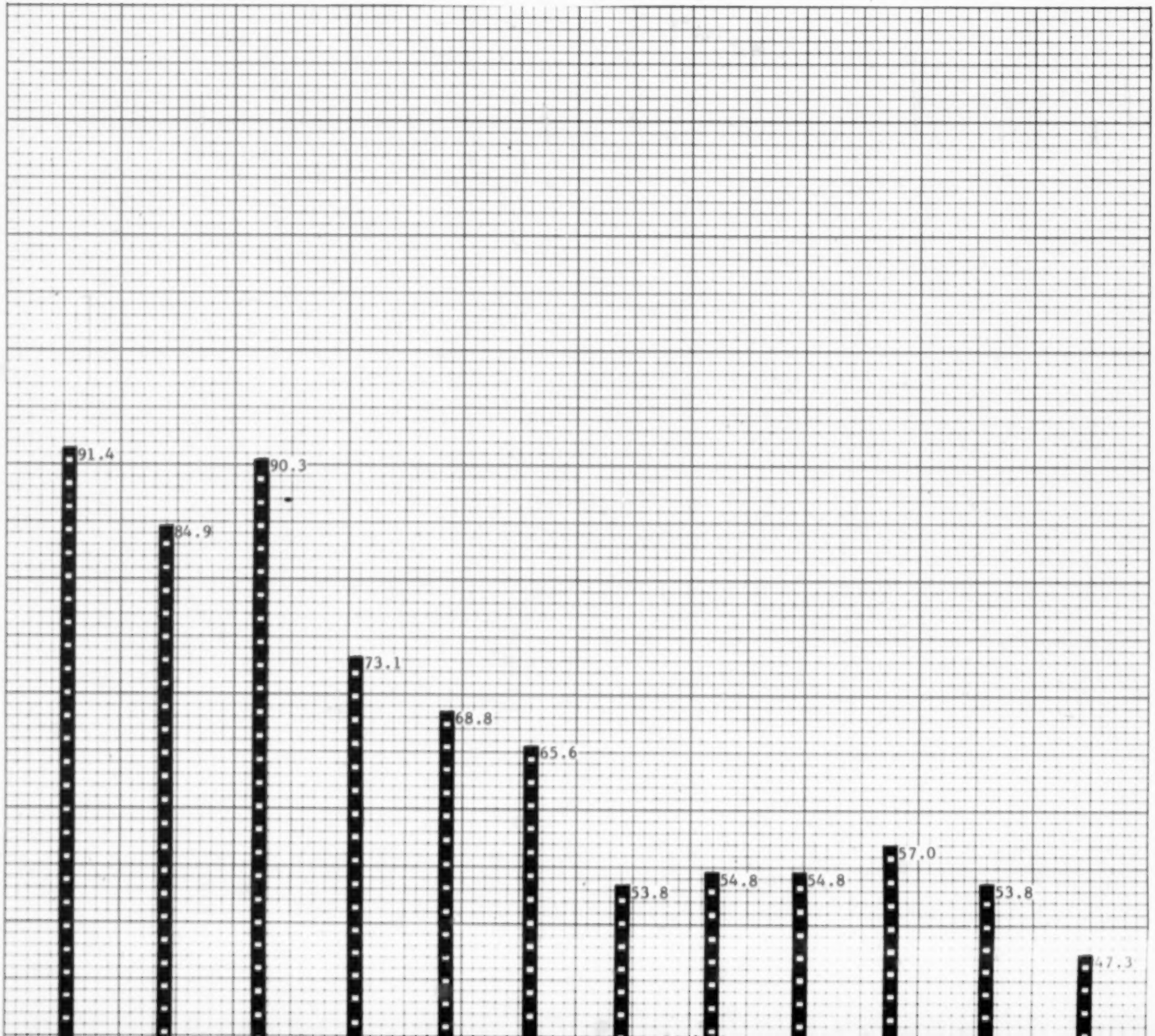
SCHOOL B COLOR CIRCLE

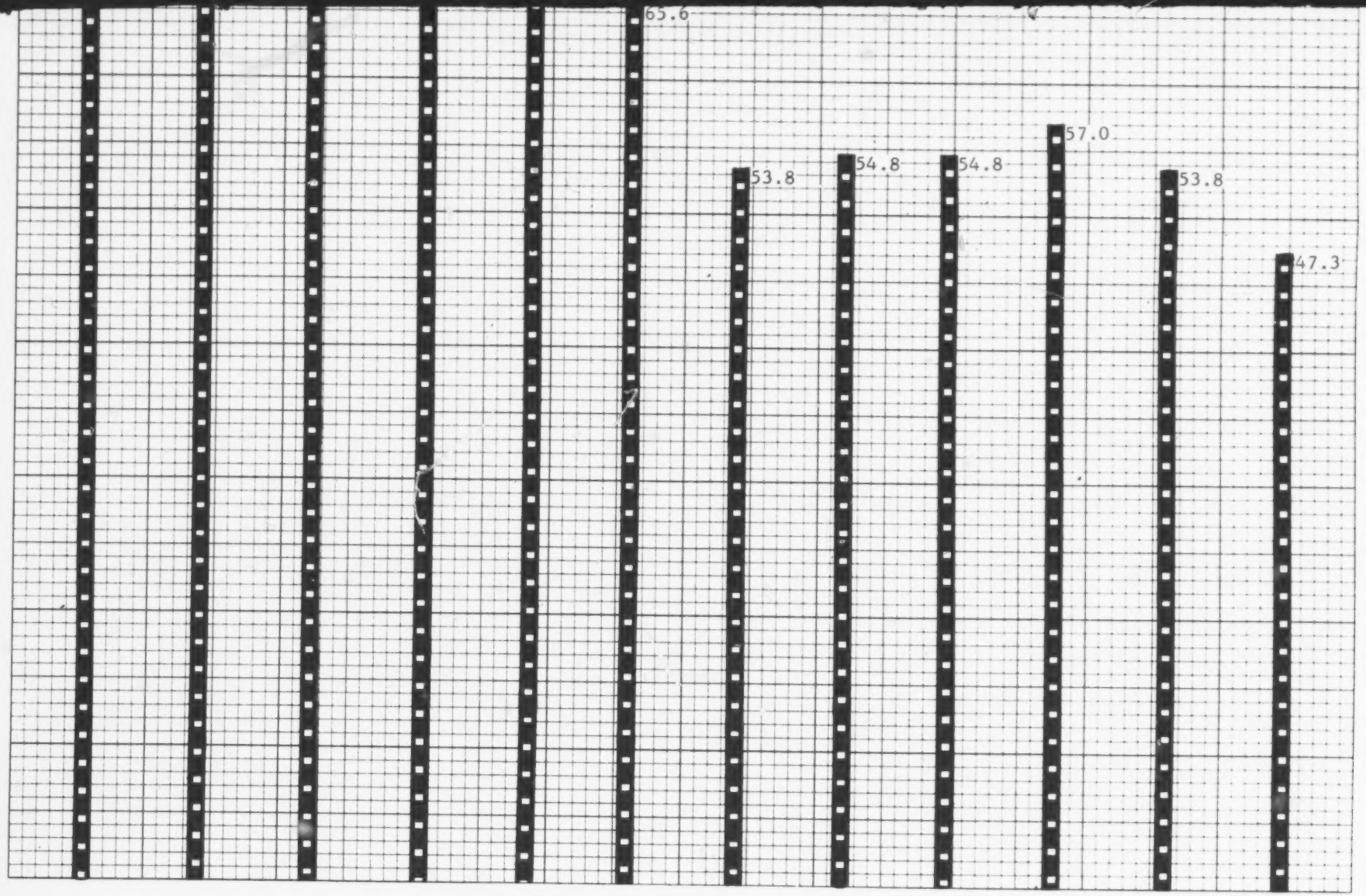
GRADE 5

ALL STUDENTS POINTS POSSIBLE: 12

Graph shows percentage of students able to place primary, secondary and tertiary colors on a standard color circle. Test administered Spring, 1971

GRAPH IX


91.4
84.9
90.3
73.1
68.8
65.6
53.8
54.8
54.8
57.0
53.8
47.3
12
11
10
9
8
7
6
5
4



SCHOOL C COLOR CIRCLE

GRADE 5

ALL STUDENTS POINTS POSSIBLE : 12

Graph shows percentage of students able to place primary, secondary and tertiary colors on a standard color circle.
Test administered Spring, 1971

GRAPH X

COLOR FOLDER A

% OF CHILDREN RESPONDING ON ITEMS, SCHOOLS A, B, C

GRADE 3

		Responses					
		1	2	3	4	5	Correct Response
Item 1	A	4.1	6.1	83.7	2.0	4.1	
	B	3.2	.0	96.8	.0	.0	3
	C	3.6	.0	96.4	.0	.0	
Item 2	A	24.5	26.5	8.2	16.3	24.5	
	B	12.7	22.2	31.7	31.7	1.6	3
	C	17.9	25.0	28.6	28.6	.0	
Item 3	A	2.0	12.2	44.9	10.2	30.6	
	B	3.2	6.3	85.7	1.6	3.2	3
	C	3.6	14.3	78.6	3.6	.0	
Item 4	A	14.3	16.3	14.3	36.7	18.4	
	B	17.5	14.3	15.9	46.0	6.3	3
	C	35.1	21.4	10.7	25.0	7.1	
Item 5	A	24.5	22.4	16.3	14.3	22.4	
	B	6.3	68.3	14.3	7.9	3.2	2
	C	21.4	39.3	21.4	10.7	7.1	

GRADE 4

Item 1	A	2.5	.0	95.0	.0	2.5	
	B	.0	.0	98.2	1.8	.0	3
	C	.0	.0	100.0	.0	.0	
Item 2	A	12.5	27.5	10.0	25.0	25.0	
	B	9.1	34.5	40.0	14.5	1.8	3
	C	6.7	26.7	43.3	16.7	6.7	
Item 3	A	.0	5.0	55.0	7.5	32.5	
	B	1.8	.0	94.5	.0	3.6	3
	C	3.3	6.7	90.0	.0	.0	
Item 4	A	22.5	7.5	22.5	30.0	17.5	
	B	3.6	5.5	50.9	34.5	5.5	3
	C	20.0	10.0	23.3	40.0	6.7	
Item 5	A	12.5	47.5	15.0	15.0	10.0	
	B	7.3	63.6	10.9	12.7	5.5	2
	C	20.0	56.7	10.0	3.3	10.0	

Item 3	A	.0	5.0	55.0	7.5	32.5	
	B	1.8	.0	94.5	.0	3.6	3
	C	3.3	6.7	90.0	.0	.0	
Item 4	A	22.5	7.5	22.5	30.0	17.5	
	B	3.6	5.5	50.9	34.5	5.5	3
	C	20.0	10.0	23.3	40.0	6.7	
Item 5	A	12.5	47.5	15.0	15.0	10.0	
	B	7.3	63.6	10.9	12.7	5.5	2
	C	20.0	56.7	10.0	3.3	10.0	

GRADE 5

Item 1	A	.0	.0	100.0	.0	.0	
	B	.0	.0	100.0	.0	.0	3
	C	.0	.0	100.0	.0	.0	
Item 2	A	10.5	24.6	19.3	28.1	17.5	
	B	3.0	25.8	40.9	28.8	1.5	3
	C	6.9	10.3	48.3	34.5	.0	
Item 3	A	1.8	8.8	80.7	3.5	5.3	
	B	.0	.0	95.5	1.5	3.0	3
	C	6.9	.0	86.2	6.9	.0	
Item 4	A	7.0	12.3	21.1	50.9	8.8	
	B	4.5	7.6	71.2	9.1	7.6	3
	C	3.4	3.4	72.4	20.7	.0	
Item 5	A	22.8	50.9	15.8	5.3	5.3	
	B	3.0	84.8	6.1	1.5	4.5	2
	C	17.2	55.2	13.8	6.9	6.9	
Item 6	A	28.1	12.3	10.5	33.3	15.8	
	B	37.9	19.7	16.7	18.2	7.6	2
	C	48.3	10.3	3.4	31.0	6.9	
Item 7	A	28.1	12.3	7.0	26.3	26.3	
	B	19.7	10.6	10.6	27.3	31.8	2
	C	27.6	6.9	13.8	34.5	17.2	

Test administered, Spring, 1971

COLOR FOLDER B

% OF CHILDREN RESPONDING ON ITEMS, SCHOOLS A, B, C

GRADE 3

		Responses					
		1	2	3	4	5	Correct Response
Item 1	A	4.2	95.8	.0	.0	.0	
	B	.0	98.4	.0	1.6	.0	2
	C	2.0	98.0	.0	.0	.0	
Item 2	A	4.2	.0	25.0	66.7	4.2	
	B	6.3	1.6	.0	87.3	4.8	4
	C	7.8	.0	.0	90.2	2.0	
Item 3	A	12.5	20.8	.0	29.2	37.5	
	B	11.1	9.5	3.2	68.3	7.9	4
	C	3.9	33.3	9.8	45.1	7.8	
Item 4	A	20.8	12.5	12.5	8.3	45.8	
	B	68.3	14.3	4.8	3.2	9.5	1
	C	29.4	17.6	19.6	7.8	25.5	

GRADE 4

Item 1	A	.0	100.0	.0	.0	.0	
	B	1.8	96.4	.0	1.8	.0	2
	C	.0	96.4	.0	3.6	.0	
Item 2	A	.0	.0	.0	100.0	.0	
	B	3.6	.0	.0	92.7	3.6	4
	C	.0	1.8	.0	96.4	1.8	
Item 3	A	4.8	.0	4.8	61.9	28.6	
	B	3.6	5.5	1.8	81.8	7.3	4
	C	7.1	26.8	.0	58.9	7.1	
Item 4	A	23.8	33.3	28.6	.0	14.3	
	B	89.1	3.6	3.6	3.6	.0	1
	C	30.4	10.7	17.9	17.9	23.2	

GRADE 5

Item 1	A	10.3	72.4	.0	17.2	.0	
	B	.0	100.0	.0	.0	.0	2
	C	1.6	95.3	.0	3.1	.0	
Item 2	A	3.4	.0	.0	96.6	.0	
	B	.0	.0	.0	98.6	1.4	4

	B	.0	.0	.0	98.6	1.4	4
	C	7.1	26.8	.0	58.9	7.1	
Item 4	A	23.8	33.3	28.6	.0	14.3	
	B	89.1	3.6	3.6	3.6	.0	1
	C	30.4	10.7	17.9	17.9	23.2	

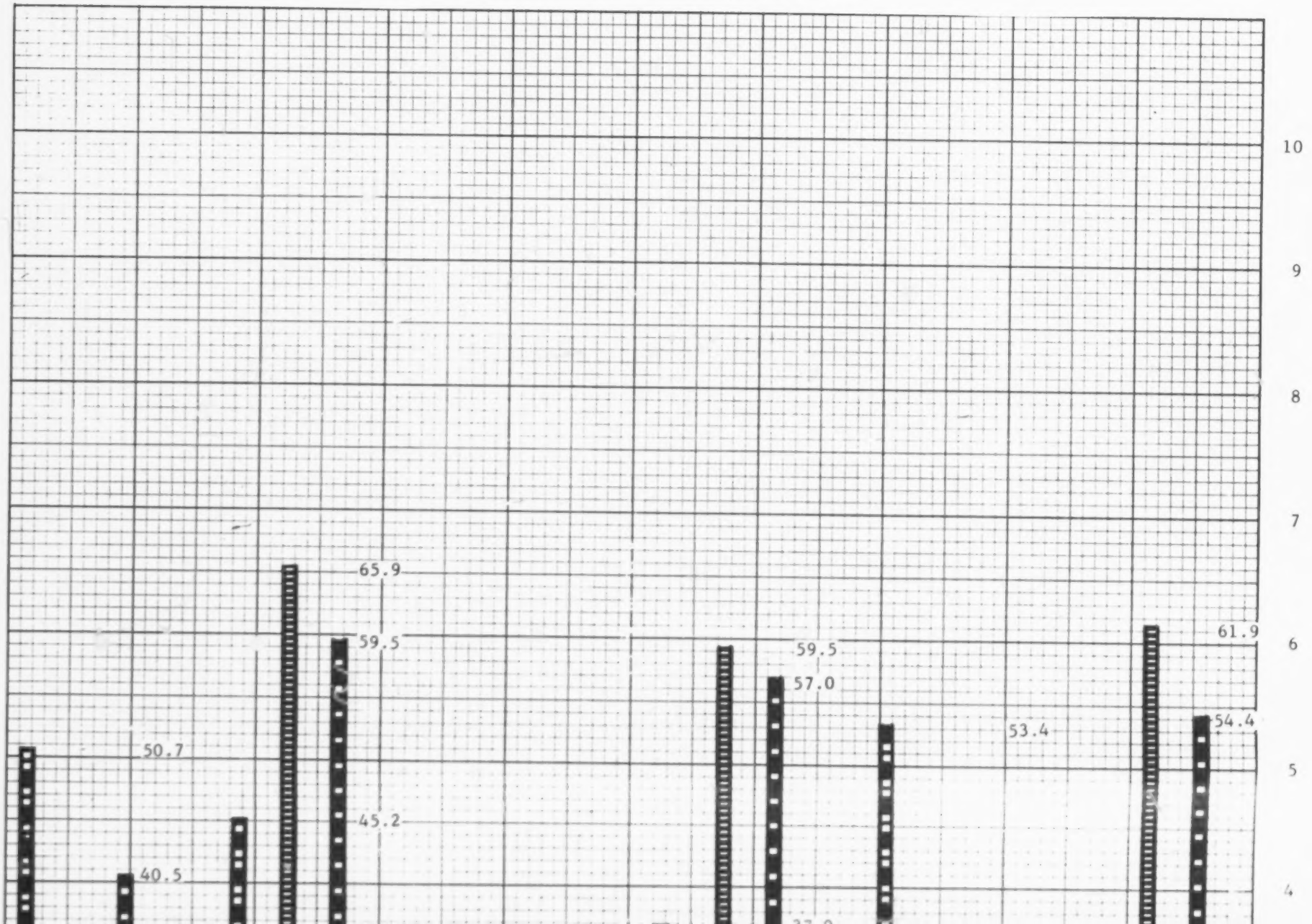
GRADE 5

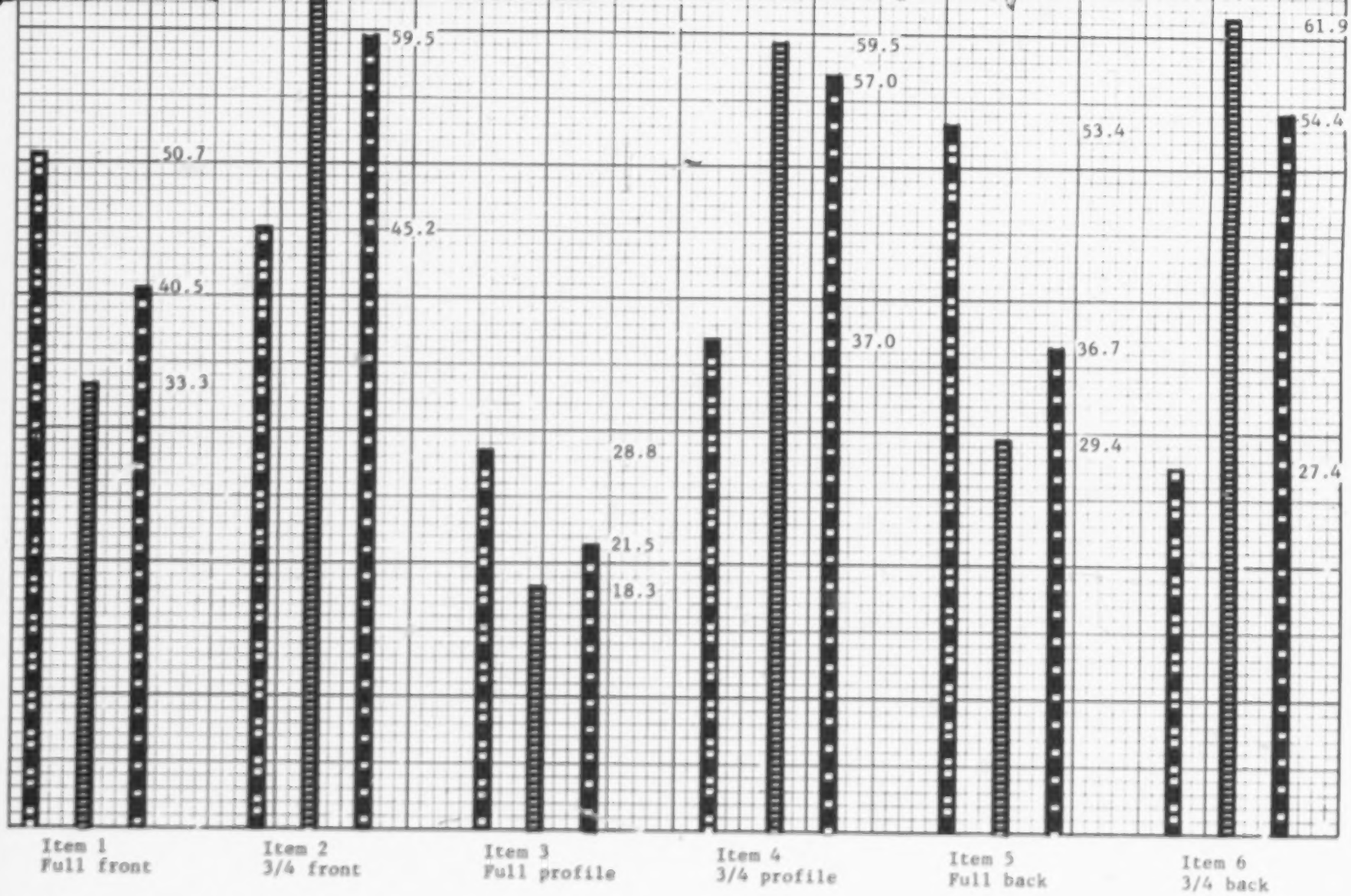
Item 1	A	10.3	72.4	.0	17.2	.0	
	B	.0	100.0	.0	.0	.0	2
	C	1.6	95.3	.0	3.1	.0	
Item 2	A	3.4	.0	.0	96.6	.0	
	B	.0	.0	.0	98.6	1.4	4
	C	.0	3.1	1.6	95.3	.0	
Item 3	A	10.3	13.8	.0	65.5	10.3	
	B	4.3	1.4	.0	89.9	4.3	4
	C	7.8	4.7	.0	85.9	1.6	
Item 4	A	69.0	3.4	20.7	3.4	3.4	
	B	91.3	.0	4.3	1.4	2.9	1
	C	70.3	9.4	15.6	1.6	3.1	
Item 5	A	.0	3.4	13.8	58.6	24.1	
	B	.0	1.4	4.3	89.9	4.3	4
	C	3.1	1.6	10.9	84.4	.0	
Item 6	A	20.7	.0	58.6	10.3	10.3	
	B	.0	4.3	81.2	7.2	7.2	3
	C	4.7	3.1	78.1	9.4	4.7	

Test administered, Spring, 1971

ITEMS IN
ASSESSMENT CRITERIA:

1. Full front
2. 3/4 front
3. Full profile
4. 3/4 profile
5. Full back
6. 3/4 back





GRADE 3

DRAWING TEST

ALL STUDENTS

SCHOOL A

SCHOOL B

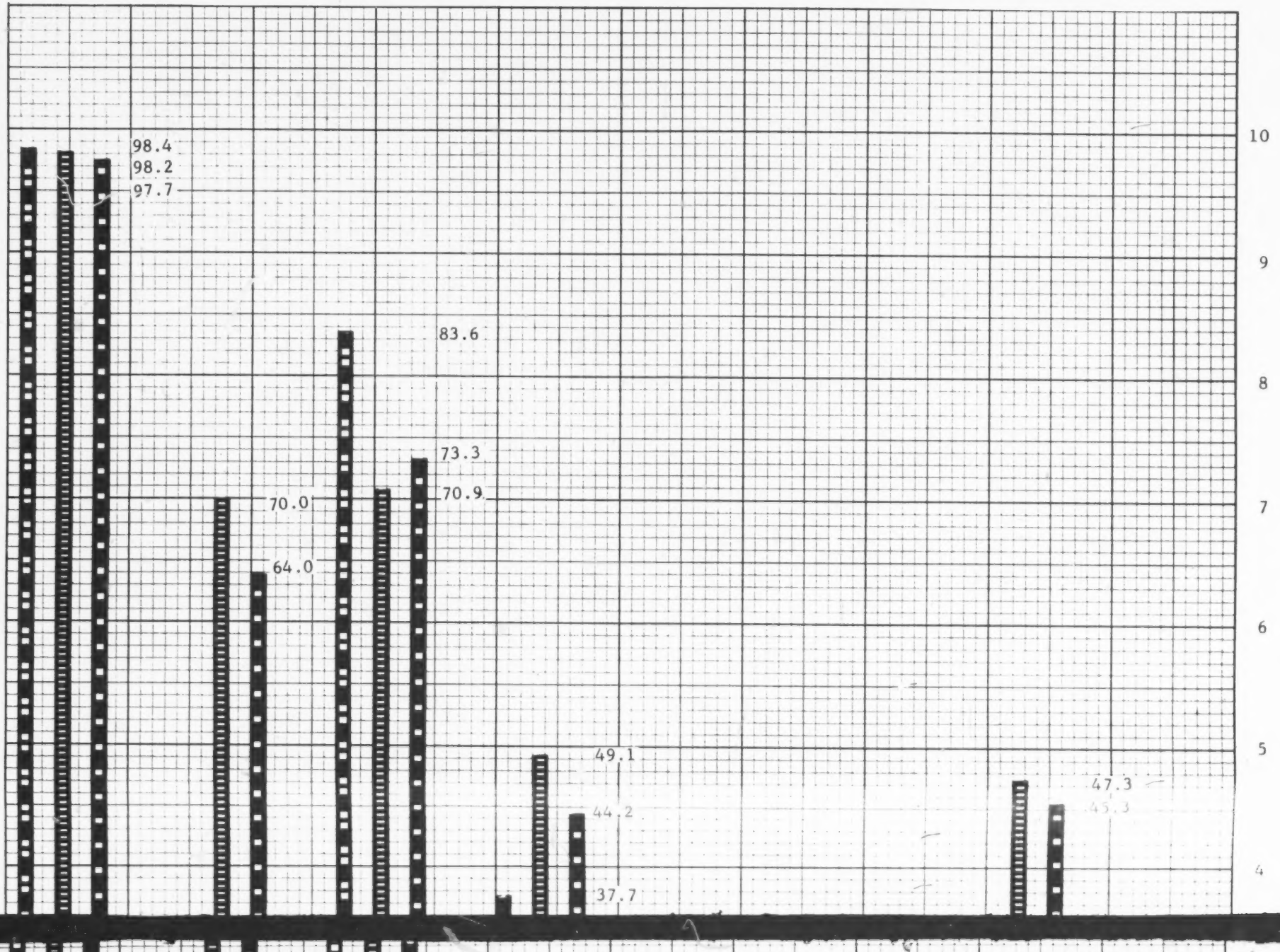
SCHOOL C

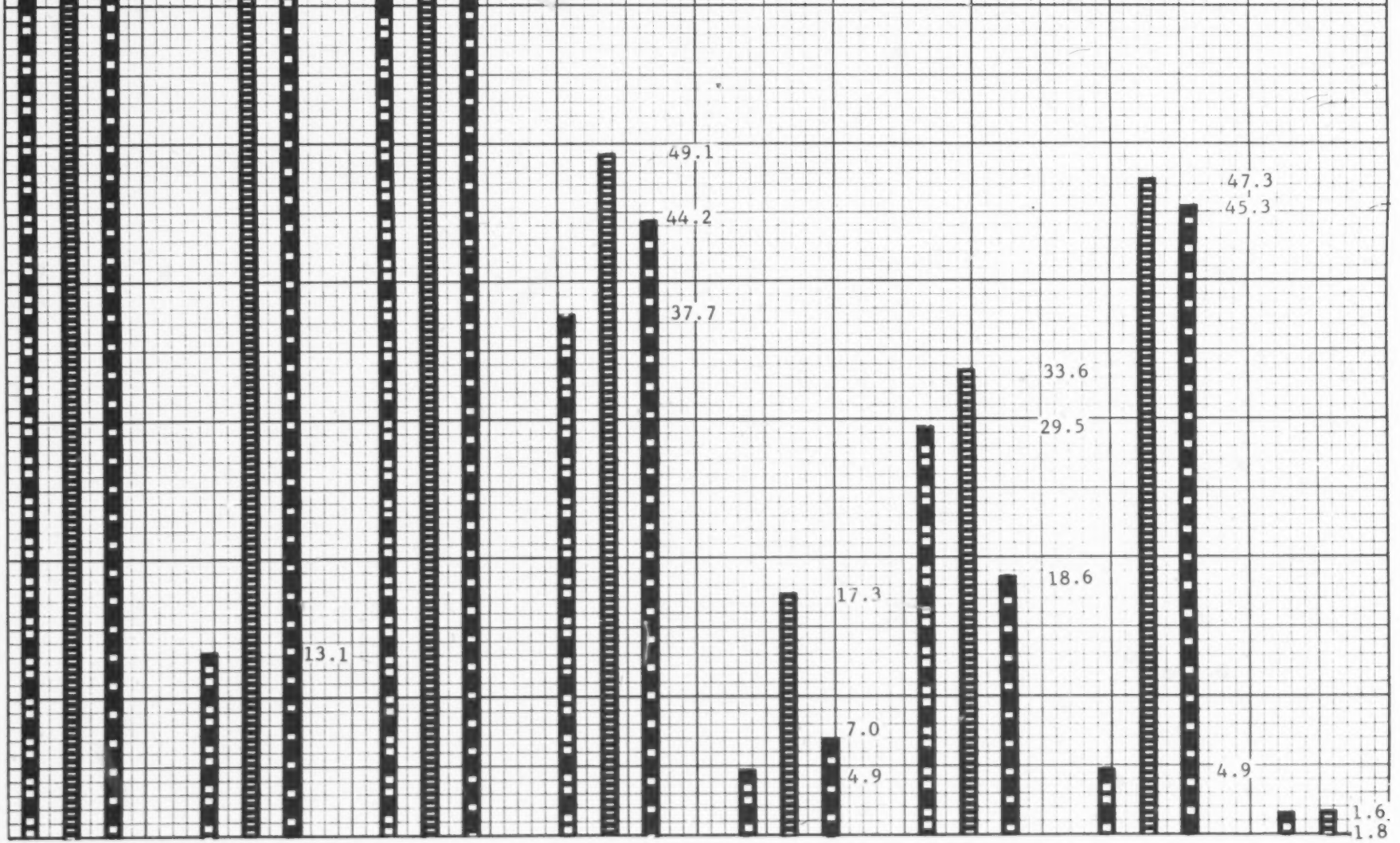
Graph shows percentage of students scoring on each item

Test administered Spring, 1971

ITEMS IN
ASSESSMENT CRITERIA:

1. Five or more children
2. Overlapping of one or more
3. Front view of one or more
4. Side view of one or more
5. Back view of one or more
6. Figures in varied poses
7. Compact linear grouping
8. Compact cluster grouping





GRADE 4 DRAWING TEST

ALL STUDENTS

SCHOOL A

SCHOOL B

SCHOOL C

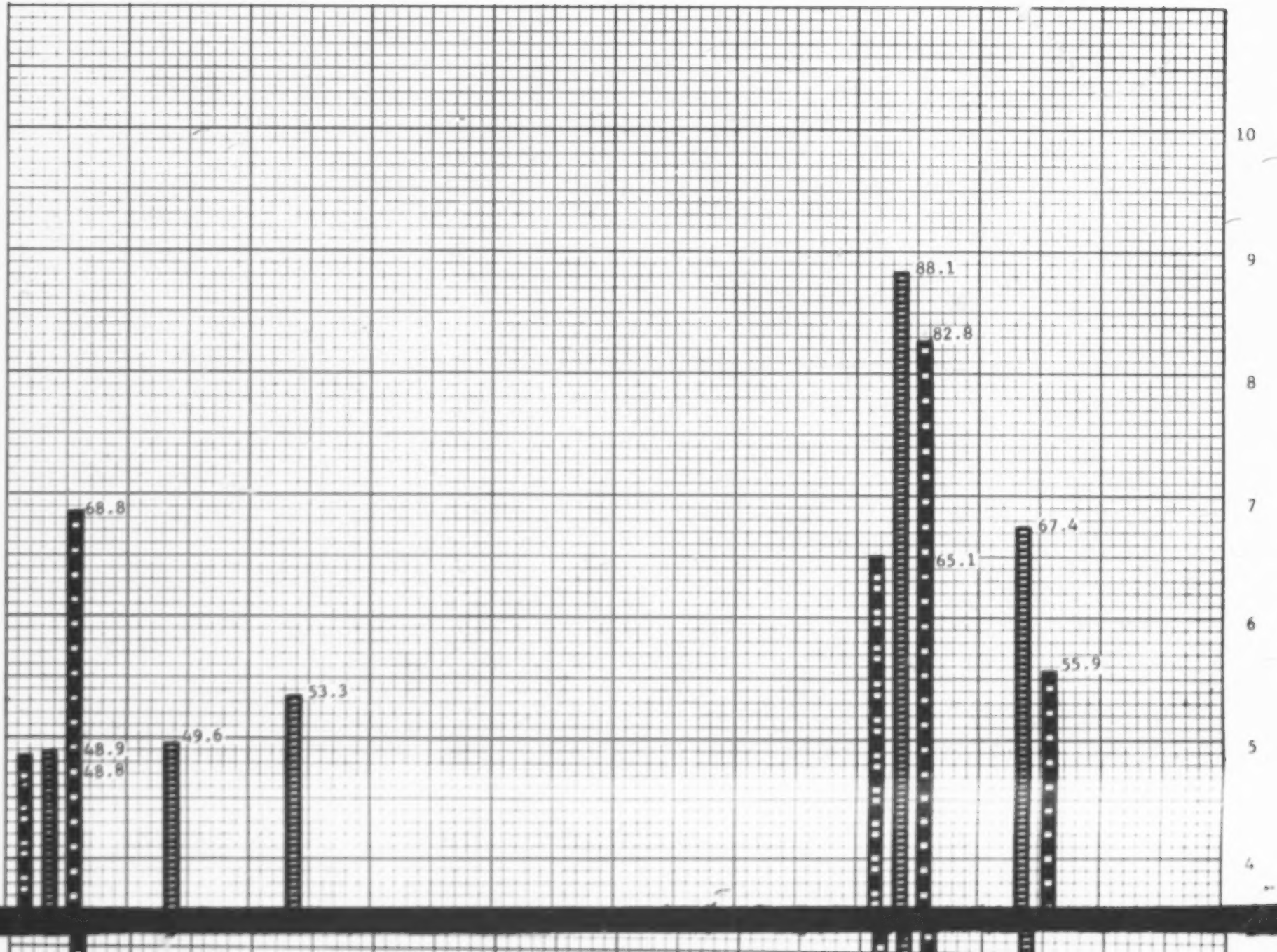
Graph shows percentage of students scoring on each item

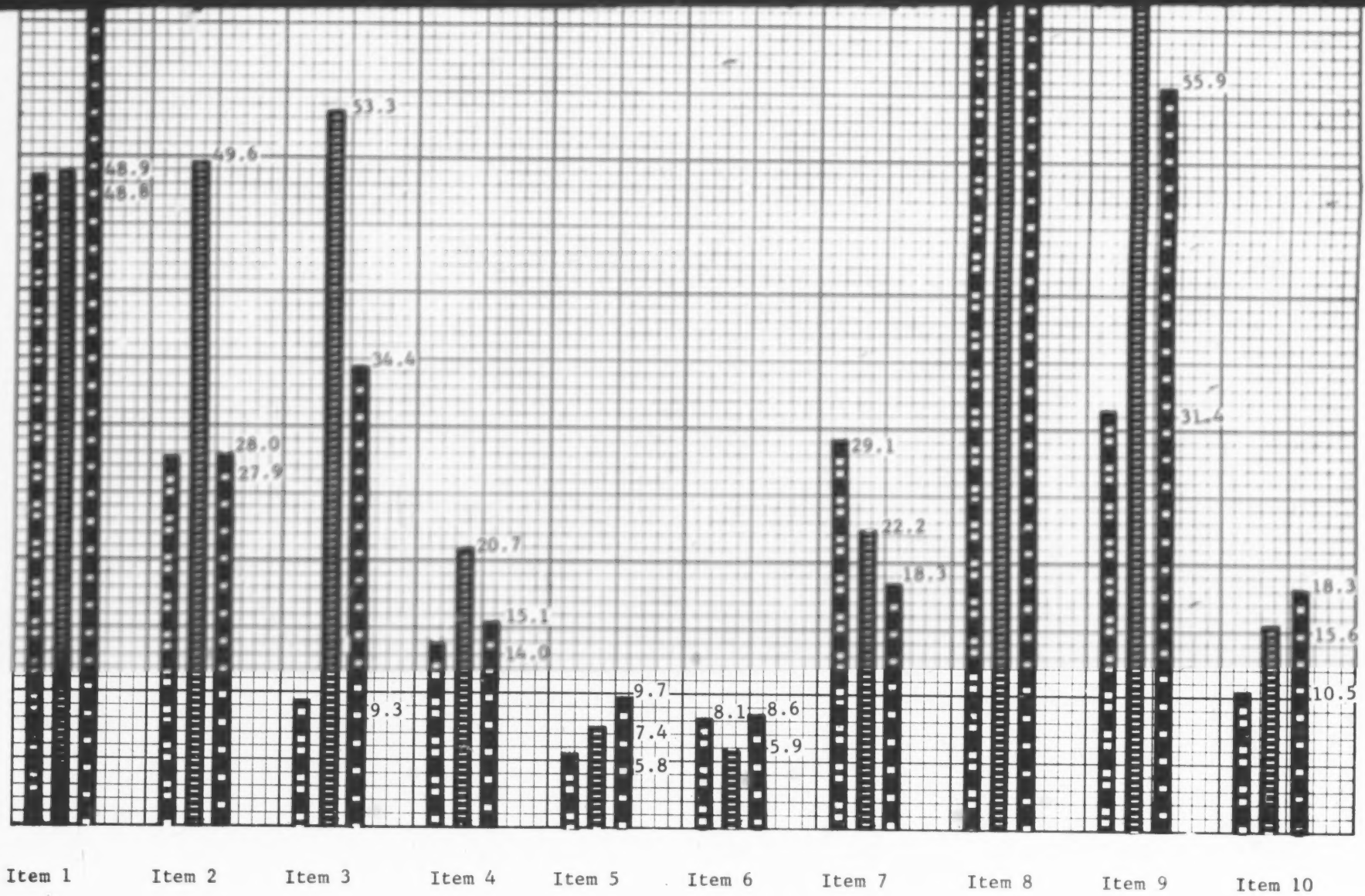
Test administered Spring, 1971

GRAPH XIV

ITEMS IN
ASSESSMENT CRITERIA:

1. Figure off the ground
2. Bending of arms at elbow
3. Bending of legs at knees
4. Hands in action
5. Feet in action
6. Head in action
7. Bending or twisting of torso
8. Arms in action
9. Legs in action
10. Additional action





GRADE 5 DRAWING TEST

ALL STUDENTS

SCHOOL A

SCHOOL B

SCHOOL C

Graph shows percentage of students scoring on each item

Test administered Spring, 1971

GRAPH XV

G R A D E F I V E

In terms of grade level expectations, to what extent are children learning to draw the human figure in action?

PROBLEM

Pretend that you are at a football game. The cheerleader is leading a cheer. In the frame below draw the cheerleader jumping high in the air.

ITEM 1. FIGURE OFF THE GROUND

1. ACCEPTABLE: Ground line clearly indicated, figure off ground.

2. ACCEPTAB
clearly

4. UNACCEPTABLE: Object does not place figure off ground.

5. UNACCEP
indicat

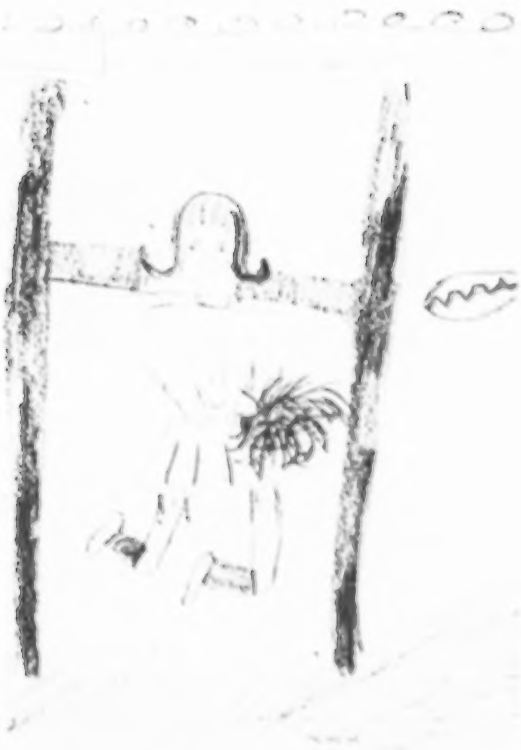
S C O R I N G

One point for each item.

1. Figure off the ground.
2. Bending of arms at elbow.
3. Bending of legs at knees.
4. Hands in action
5. Feet in action.
6. Head in action.
7. Bending or twisting of torso.
8. Arms in action.
9. Legs in action.
10. Additional action.

Total points possible: 10

2. ACCEPTABLE: Figure placed clearly above bench, people.



3. ACCEPTABLE: Figure clearly above ground line.

5. UNACCEPTABLE: Lines give no indication figure off ground.

6. UNACCEPTABLE: No ground line.

GRADE FIVE

GRADE LEVEL EXPECTATIONS
FIGURE DRAWING

Items 7, 10, Page 34,
Art for Elementary Schools

7. "Children can learn to draw figures ... in action poses – walking, running, sports activities, working."

10. "Children can learn to show bending of joints: knees, elbows, hips, ankles, wrists."

ITEM 2. BENDING OF ARMS AT ELBOW

1. ACCEPTABLE: Arms abruptly bent at elbow.

4. BORDERLINE: Arms bent in loops.

2. ACCEPTA
at elbo

5. UNACCEP

MATERIALS

White drawing paper 8-1/2" x 11" with instructions printed at top, and drawn frame 5-7/8" x 7-3/8".

#2 Primary Pencil, soft lead without eraser.

2. ACCEPTABLE: Arms abruptly bent at elbow.

3. BORDERLINE: Bend less abrupt, appears to be at mid-arm.

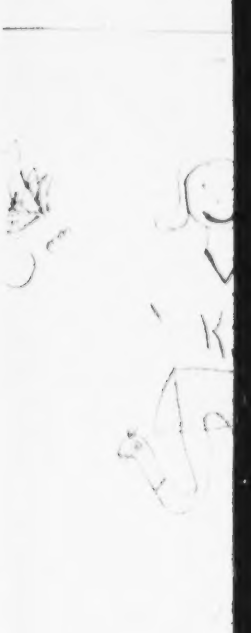
5. UNACCEPTABLE: No bend.

6. UNACCEPTABLE: No bend.

ITEM 3. BENDING OF LEGS AT KNEES

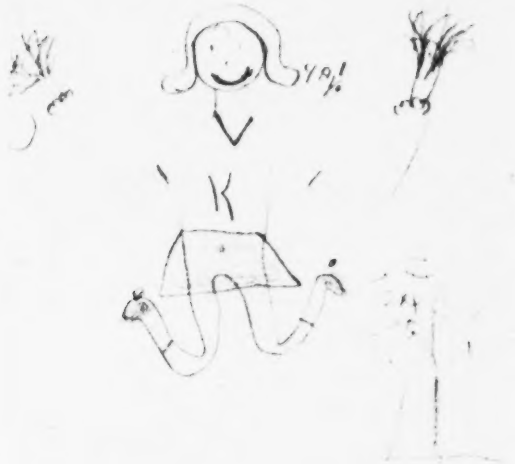
1. ACCEPTABLE: Legs abruptly bent.

4. BORDERLINE: Slight suggestion of knee bend in one leg.



2. ACCEPTABLE: L
bent, bend cl

5. UNACCEPTABLE
no bend of l



2. ACCEPTABLE: Legs less abruptly bent, bend clearly at knee.

3. ACCEPTABLE: One leg bent clearly at knee.

5. UNACCEPTABLE: Knees indicated, no bend of leg.

6. UNACCEPTABLE: No bend at knee.

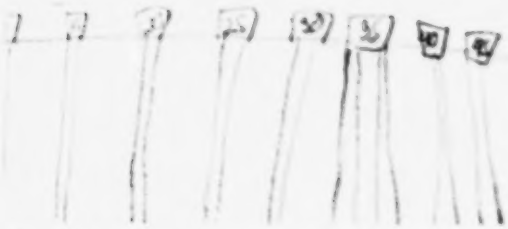
ITEM 4. HANDS IN ACTION

1. ACCEPTABLE: Hand clearly shown, fingers closed around handle.

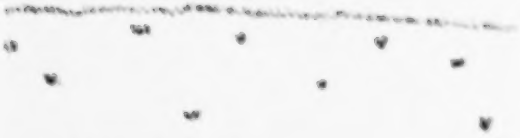
2. ACCEPTABLE: Hands clea holding pom-pom.

4. BORDERLINE: Hands clearly shown, one pom-pom in palm, one on top.

5. UNACCEPTABLE: Fingers pom-poms mere extensi

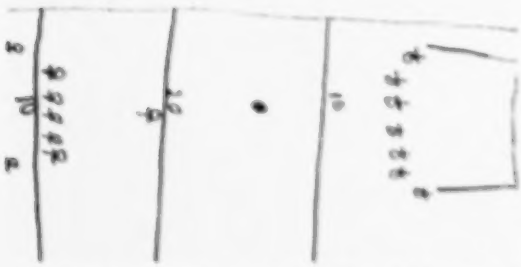


2. ACCEPTABLE: Hands clearly holding pom-pom.



3. ACCEPTABLE: Fingers are in closed position grasping pom-pom.

5. UNACCEPTABLE: Fingers indicated, pom-poms mere extension of arm.



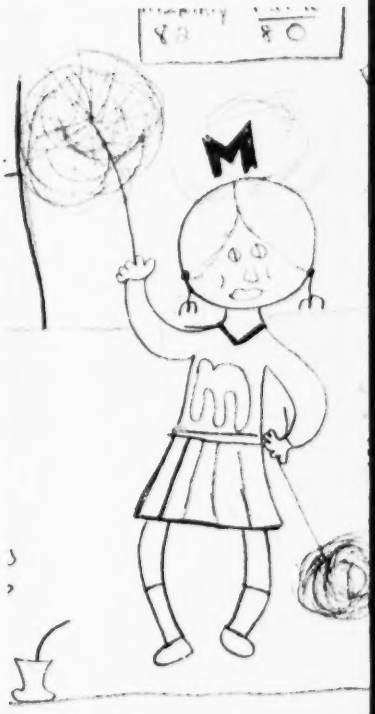
6. UNACCEPTABLE: Pom-poms placed on top of extended hands.

ITEM 5. FEET IN ACTION

1. ACCEPTABLE: Feet extended as if on tip-toe.

2. ACCEPTABLE: One foot p forward.

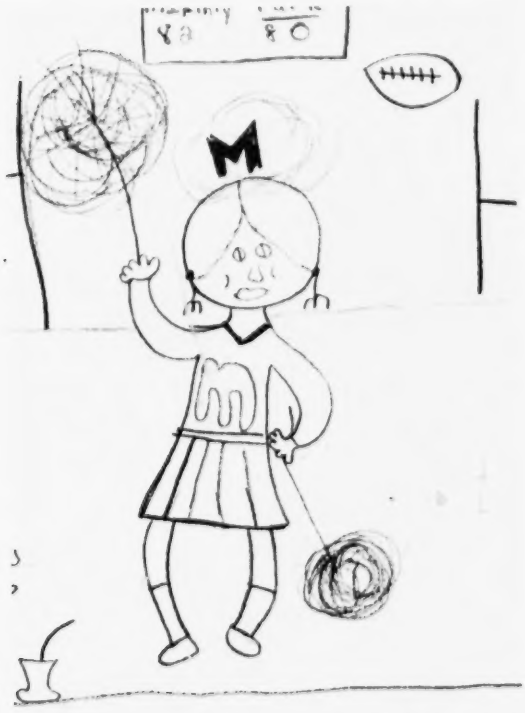
4. UNACCEPTABLE: Feet at right angles to leg.



5. UNACCEPTABLE: Symbolic representation of feet

2. ACCEPTABLE: One foot pointing forward.

3. ACCEPTABLE: One foot pointing forward, other extended.



5. UNACCEPTABLE: Symbolic and vague representation of feet.

6. UNACCEPTABLE: Feet spread, no action.

ITEM 6. HEAD IN ACTION

1. ACCEPTABLE: Definite turn of head.

2. ACCEPTABLE: Head turned uplifted.

4. BORDERLINE: Suggestive turn of head.

5. UNACCEPTABLE: Straight view.

2. ACCEPTABLE: Head turned, uplifted.

3. ACCEPTABLE: Head Uplifted.

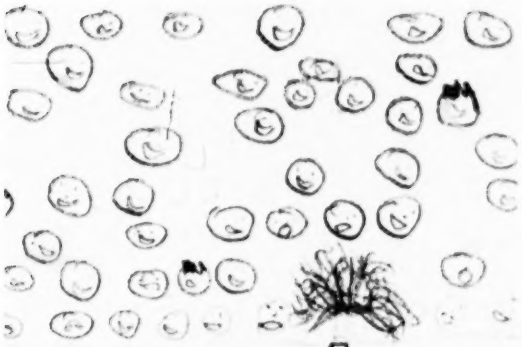
5. UNACCEPTABLE: Straight profile view.

6. UNACCEPTABLE: Straight frontal view.

ITEM 7. BENDING OR TWISTING OF TORSO

1. ACCEPTABLE: Body thrown backward.

2. ACCEPTABL
profile,



4. ACCEPTABLE: One leg thrust forward, other back, hip twist.

5. UNACCEPTA
view.

2. ACCEPTABLE: Torso front, legs profile, indicate hip twist.

3. ACCEPTABLE: Body bent at hips, thrust forward.

5. UNACCEPTABLE: Straight profile view.

6. UNACCEPTABLE: Straight front view.

ITEM 8. ARMS IN ACTION

1. ACCEPTABLE: One arm up, other down.

2. ACCEPTABLE: Arms extende in different positions.

4. UNACCEPTABLE: Arms lifted upward, static pose.

5. UNACCEPTABLE: Arms close lifted but in static pos

2. ACCEPTABLE: Arms extended and in different positions.

3. ACCEPTABLE: Arms extended in flexed, action pose.

5. UNACCEPTABLE: Arms close to body, lifted but in static pose.

6. UNACCEPTABLE: Arms closely held, static pose.

ITEM 9. LEGS IN ACTION

1. ACCEPTABLE: Knees bent, one above other.

2. ACCEPTABLE: Legs spr
flexed pose.

4. BORDERLINE: Suggestive jumping pose, action not convincing.

5. UNACCEPTABLE: Legs in
pose.

2. ACCEPTABLE: Legs spread, flexed pose.

3. ACCEPTABLE: Legs bent at knee, floating pose.

5. UNACCEPTABLE: Legs in static pose.

6. UNACCEPTABLE: No leg action.

ITEM 10. ADDITIONAL ACTION

1. ACCEPTABLE: Hair swept upward, objects floating around figure.

2. ACCEPTABLE: Verti
lines, movement s

4. ACCEPTABLE: Hair swept upward.

5. ACCEPTABLE: Hair
flowing backward

2. ACCEPTABLE: Vertical jet-action lines, movement shown by hair.

3. ACCEPTABLE: Lines of hair and pom-pom suggest action.

5. ACCEPTABLE: Hair and skirt flowing backward.

6. ACCEPTABLE: Hair and skirt flowing upward.

WHAT CHILDREN CAN LEARN: PEOPLE

Since people are such an important part of the real and imagined world of the child, high priority should be given to helping children develop competency in pictorial representation of the human figure.

Young children will draw figures easily and naturally if provided motivation and encouragement. They should be helped to draw what they understand, feel and know as well as what they see when they look at people.

The delightful, unsophisticated figure representations of young children can be spoiled by adults who do not respect the child's own proportions and symbols and who attempt to force proportion too early.

On the other hand, children often become increasingly self-critical of their figure drawings as they grow older and ask for help in proportion and ways of showing body movement. If no help is given, they often stop drawing people.

Quick five-minute sketches from posed models will help children become aware of proportions and relationships of parts of the body.

The Art Handbook for Elementary Teachers lists numerous suggestions for motivating figure drawing.

GRADES 1 & 2

Children should be given many opportunities to represent people so that they will be encouraged to:

1. Draw recognizable human forms.

2. Differentiate sizes of children and adults.

3. Show some bodily movement
   raised arm extended leg

4. Draw figures seated, lying down, in other positions.

5. Develop awareness of difference in sizes of parts of the body.

6. Understand placement of facial features: eyes, ears, nose, lips.
   Include details and parts
   hair noses fingers
   eyebrows lips toes
   eyelashes ears fingernails

7. Include details of clothing
   buttons hair ribbons
   zippers collars
   shoes prints
   shoelaces plaids

8. Differentiate styles of clothing
   mini-skirts bell-bottom pants
   pleated skirts jeans
   dress shoes tennis shoes

9. Overlap, or show figures behind and in front of other figures.

GRADE

Children will con
iences in drawing
to those things e
grades, experienc
help children:

1. Become increa
   of the body a
   relationships
   arms growin
   legs as ext
   head attach

2. Show size rel
   short & ski
   tall & fat

3. Show bending
   knees
   ankles

4. Represent fig
   runn
   spor
   work

5. Become increa
   and shape of
   connection of

6. Be increasing
   and parts, ar
   lationships s
   eyes to ea
   heel to toe
   neck to sh

7. Relate clothi
   belt at wais
   collar at ne

8. Show more sp
   and clothing

9. Group figure
   and profile

GRADES 3 & 4

Children will continue to have many experiences in drawing figures. In addition to those things emphasized in previous grades, experiences will be planned to help children:

1. Become increasingly aware of parts of the body and their natural relationships such as
   - arms growing out of shoulders
   - legs as extension of hips
   - head attached to shoulders by neck

2. Show size relationships such as
   - short & skinny children/adults
   - tall & fat children/adults

3. Show bending of joints
   - knees
   - elbows
   - hips
   - ankles
   - wrists

4. Represent figures in action poses
   - running
   - sports activities
   - working

5. Become increasingly aware of the size and shape of parts of the body and connection of one part to another.

6. Be increasingly conscious of details and parts, and understand proper relationships such as
   - eyes to ears
   - ears to neck
   - heel to toe
   - nose to lips
   - neck to shoulder
   - wrist to hand

7. Relate clothing to body shape
   - belt at waist
   - shoe to foot
   - collar at neck
   - mitten to hand

8. Show more specific styles of clothing and clothing for specific function.

9. Group figures: show front, back, and profile views.

GRADES 5 & 6

Children will continue to have experiences in drawing the human figure. Quick 5-minute poses, longer posed models, and varied motivations will be planned. Children can be expected to:

1. Observe the figure in greater detail and show increasing awareness of variation of body parts
   - taper of forearm from elbow to wrist
   - taper of leg from knee to ankle

3. Show more refined bending of joints to indicate action
   - fingers
   - foot
   - hand
   - twist of spine
   - turn of head

4. Represent people in more varied and complex action poses.

5. Draw the human figure as a solid form with suggestion of roundness or three-dimensional quality
   - head
   - arms
   - torso
   - legs

6. Represent characteristic details and variations of racial and ethnic groups

Hair	Lips	Noses	Eyes
long	thin	wide	slanted
short	thick	narrow	close lids
curly		long	wide open
straight		short	

Color of
- skin
- eyes
- hair

7. Relate clothing and details to body action
   - wrinkles
   - stress lines

8. More observation and use of clothing styles and details.

9. Put figures together in groups showing varied poses, overlapping, and front, back, and profile views.

WHAT CHILDREN CAN LEARN: ANIMALS

GRADES 1 & 2

The world of animals includes
- Quadrupeds, four legged animals
- Birds
- Insects and bugs
- Fish
- Reptiles and amphibians
- Prehistoric animals
- Imaginary animals

At all grade levels children should be given motivations involving representation of animals by means of
- drawings
- paintings
- papier-mache
- clay modeling
- graphics

Children can be expected to:

1. Draw recognizable familiar animal forms:
   - zoo
   - pets
   - farm
2. Differentiate sizes of mother, father, and baby animal. Be aware of relative sizes of animal.
3. Show some bodily movement.
4. Include eyes, mouth, tail, nose, whiskers, antennae, claws, hooves, and other small parts.
5. Represent animals in natural habitat;
   - fish in water
   - birds in trees
   - birds, bees, butterflies flying
6. Show animals in varied positions:
   - walking
   - reclining
   - on hind legs
7. Overlap or show animals behind and in front of other animals.

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1. Show
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6. Show
thing
7. Put a
8. Show
cover

GRADES 3 & 4

Through continued experiences in representing animals, children can be expected to:

1. Show increasing awareness of variety of animals
   zoo farm jungle
   pets forest prairie

2. Differentiate sizes of body parts.
   Relationship of
   head to body eye to ear
   leg to body nose to head
   wings to body tail to body

3. Represent motion by
   bending of joints
   movement of neck and torso

4. Draw parts in a natural relationship:
   head attached to body by neck
   forelegs to shoulders
   hind legs to hips.
   Be increasingly aware of characteristic details.

5. Show increasing awareness of animals in natural habitat:
   underground
   in the air
   in caves

6. Show animals doing different kinds of things:
   grazing crouching
   bathing eating
   hanging from trees flying

7. Put animals in groups.

8. Show repeated patterns in animal coverings
   insects fish scales
   butterfly wings
   fur reptile coverings

GRADES 5 & 6

In addition to those learnings emphasized in previous grades, children should be able to:

1. Represent varied animals within one category
   Fish: tropical, fresh-water, shell
   Insects: butterfly, spider, beetle

2. Indicate proportionate sizes of body parts and refinements of shapes to body parts:
   leg tapers from hip to hoof, etc.

3. Represent characteristic action of appendages
   tail swishing
   ears flapping
   mane flying

4. Show placement and relationship of facial features on specific animals.

6. Show animals from different angles.

9. Represent by body position and characteristic actions such emotions as
   fear and anger ruffled fur
   exposed fangs
   extended claws
   tensed muscles
   calm curled position
   relaxed muscles
   affection of mother to young
   of pet to master
   of animal to trainer
   of animal to animal

WHAT CHILDREN CAN LEARN: PLANTS

GRADES 1 & 2

Children will have experiences in painting and drawing varied kinds of plants and growing things which will help them learn to:

The world of growing things includes

- trees
- shrubs
- vines
- weeds
- grasses
- leaves
- roots
- flowers
- fruits
- vegetables
- grains

Plants provide rich subject matter for

- drawings
- paintings
- designs for stitchery
- collage
- printmaking
- clay relief

1. Represent basic structural parts of plants
   - stem, trunk, stalk
   - flower, petals
   - branches
   - leaves
2. Differentiate relative sizes of
   - flowers
   - shrubs
   - trees
3. Represent growth patterns to be seen in
   - branching patterns in trees & shrubs
   - radiating patterns in leaves
   - petals
   - cross-section of fruit
4. Show seasonal variations in color
5. Show where plants are located
   - garden
   - yard
   - vase
6. Show how leaves, petals overlap, one flower overlaps another flower.
7. Represent plants in
   - summer
   - winter
   - autumn
   - spring
8. Observe plants and bring to class
   - autumn leaves
   - seasonal fruits
   - seed pods
   - spring flowers
   - vegetables

G

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   a fl
6. Show o
   tre
   tre
7. Repres
   mates
   t
   c
   b
8. Select
   weeds,

GRADES 3 & 4

In addition to earlier learning, children can learn to:

1. Show more complicated natural structure
   roots growing into ground
   petals growing from a center
   leaves growing from stem or branch

2. Become aware of proportionate sizes and relationship of parts
   trunk to branches petals to stalk
   leaves to stem root to stem

3. Observe radial patterns of growth in
   cross-section of tree trunks
   plant stems seed pods
   fruits vegetables
   Alternating growth patterns in
   veins of leaves
   twigs branching from trunk
   branching of trunk, limbs, leaves
   Leaves on stalk or stem

4. Show an increasing awareness of color variations
   greens in leaves on tree or shrub
   colors of grass: green, brown
   yellows in a marigold

5. Represent plants singly or in a group in an environment
   a florist shop a greenhouse
   a flower farm a jungle

6. Show overlapping of
   trees branches & trunk
   tree branches leaves, flowers

7. Represent effects of seasons and climates on plants
   trees without leaves in winter
   color of grass in winter
   bud on branches in spring

8. Select, bring to class, and arrange weeds, flowers, plants.

GRADES 5 & 6

Children can be expected to:

1. Represent varied structural plant shapes
   as design motifs
   in pictorial compositions

2. Become increasingly sensitive to size relationships and proportions.

3. Show characteristic line patterns of plants
   twisted gnarled tangled
   web-like flowing fluffy

4. Show increasing awareness of color variations
   many greens in one leaf
   autumn colors
   difference between underside & top

5. Show greater awareness of natural habitat and characteristics
   color of desert plants
   jungle plants
   underwater plants

7. Show effects of nature in
   movement of wind and rain on grass
   snow on plants, shrubs, trees
   color variations created by sun
   dull shadowed areas

8. Make more selective arrangements of fruits, vegetables, plants for still-life study.

WHAT CHILDREN CAN LEARN: BUILDINGS

GRADES 1 & 2

GR

At all grade levels children should be given experiences in representing buildings in varied media.

Children can learn to see the many kinds of architecture and building details on walking tours of the school neighborhood, field trips, and observation from classroom windows.

Architects plan, builders construct, and people use many types of buildings.

- Homes
- Stores
- Public Buildings
  - Courthouse
  - City Hall
  - Fire Station
  - Schools
  - Churches
- Factories
- Special Service Buildings
  - Laundromat
  - Barbershop
  - Restaurant
  - Drive-In
  - Beauty Shop
- Transportation Buildings
  - Airport
  - Bus station
  - Marina
  - Railway station
  - Waterfront dock

It is expected that children at these grade levels will be able to:

1. Show basic exterior parts
   main structure — roof
   doors & windows — chimneys

2. Differentiate relative sizes of buildings.

3. Differentiate kinds of buildings by symbols and objects
   flagpole at school — signs on garage
   cross on church — merchandise in stores

4. Represent basic structural shapes and combinations of shapes.

5. Show details
   window panes — door knobs
   curtains in windows — steps
   mailboxes — house numbers

6. Differentiate color of roof, main structure, details.

7. Indicate, by line or texture, the material of which building is made.

8. Represent different kinds of interior space by means of fixtures, appliances, instruments, furnishings
   Home: living room furniture, bathroom fixtures, kitchen appliances
   Office: dental and medical instruments and appliances
   Stores: cash register, shopping cart, check-out counter, merchandise on shelves
   Shops: barber chair, hair dryer in beauty parlor.

9. Show where building is located by surroundings such as trees, streets, buildings.

10. Show logical placement of windows, variety, size and shape of doors.

11. Show people, animals, vehicles in relation to buildings.

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GRADES 3 & 4

Through continued experience in representing and observing buildings, children can be expected to know how to

1. Show various kinds of foundations, porches, garages.
2. Show different sized buildings in groups or complexes.
3. Differentiate kinds of buildings by size, shape, details
   church windows flags
   smoke stacks signs
4. Show complexity of shapes and combinations of shapes that form the main structure as well as varied shapes of architectural details.
5. Indicate more complex architectural detail
   open and closed doors
   relative sizes of windows and doors
6. Show increased awareness of color variation to suggest specific architectural materials
   windows shutters doors
7. Show varied line and texture
   horizontal: bricks, wood, siding
   vertical: corrugated metal, pre-fabs, gutter pipes
   curving: windows, door frames, arches
   lacy patterns: grill work, shutters, stair railings, windows
   geometric: window panes, entry ways
   irregular: masonry, roof, siding, shakes
8. Represent additional types of interior space; show increased use of detail to show function.
9. Represent buildings in compact groups in an environment such as a residential neighborhood, farm, shopping center. Show relation of buildings to shrubs, flowers, sidewalk.
10. Show greater sensitivity to placement of additional details.
11. Represent relative size of people, animals, and vehicles to buildings.

GRADES 5 & 6

Children can be expected to add these understandings to those suggested for earlier grades

1. Show buildings standing on foundation.
   Roof overhanging main structure
   Parts fit structurally as to construction
   Fit architecturally as to design
2. Show greater sensitivity to size relationships of buildings.
3. Be aware that exterior design usually indicates interior function of buildings.
4. Represent such architectural shapes as
   pyramids trapezoids
   cones: silos parallelograms
   spheres: Golden Rondelle
5. Use varied shapes, more complex combinations of windows, roofs
   chimneys, TV and radio antennae
   brick, wood, metal, concrete, stone

Understand the role of the architect and his work. Understand the craft of the building trades.

Be aware of the importance of architecture to our total environment. Understand the need for architectural planning in urban and rural settings.

WHAT CHILDREN CAN LEARN: VEHICLES

GRADES 1 & 2

Children should be given experiences in representing many types of vehicles. Direct first-hand observation and stimulating motivations will help children learn to compose pictures involving real and imaginary vehicles.

LAND VEHICLES

wheelbarrow	automobile	wagon
unicycle	station wagon	tractor
bicycle	camper	earth mover
motorcycle	mail truck	bull-dozer
mail cart	fire truck	caterpillar
golf cart	ambulance	crane
snowmobile	police car	trencher

WATER VEHICLES

sailboat	barge
canoe	submarine
rowboat	steamship
raft	fireboat

AIR VEHICLES

helicopter	space ship
airplane	space capsule
balloon	imaginary airship

Children can be expected to

1. Represent basic shapes and combinations of vehicle shapes showing main parts
   - body
   - trunk
   - hood
   - window
   - wheels and tires
   - wings of airplane
   - sails of boat
2. Differentiate relative size of vehicles
   - truck is larger than go-cart
   - bicycle larger than tricycle
3. Show different kinds of vehicles by means of signs and symbols
   - ladder of fire-truck
   - siren and light on police car
   - flashers and signs of school bus
4. Show exterior details
   - windows
   - doors
   - door handles
   - headlights
   - bumpers
   - fenders
5. Show interior details and parts
   - first aid kit on bus
   - steering wheel
   - dash board
   - seats
6. Show where vehicles are located by surroundings
   - streets
   - stop & go lights
   - street lights
   - country roads
7. Show interior and exterior sections in same picture: x-ray views.
8. Show relationship of people who operate vehicles to the vehicles.
9. Show different views of vehicles.

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2	GRADES 3 & 4	GRADES 5 & 6
	Children can learn to	In addition to earlier learnings, children should be able to
d combinations main parts d tires airplane boat	1. Be increasingly aware of shapes and shape relationships of parts.	1. Show more varied shapes and combinations of shapes circular oval rectangular cogs
ze of vehicles o-cart icycle	2. Represent different sizes of vehicles in a group in a parking lot on a city street on a highway	2. Show increasing differentiations of proportionate sizes of vehicles and parts.
el cles by s lice car school bus	3. Represent different kinds of vehicles singly and in groups.	3. Develop greater competency in representing many types of vehicles.
bumpers fenders	4. Show increasing awareness of characteristic details and line patterns created by radiating spokes of wheels by repeat lines in radiator grill	4. Show more complicated and detailed exterior view.
parts dash board seats	5. Show inside views: seats, engine, trunk when vehicles are in an auto assembly body repair shop a service station marina service an airplane hangar shop	5. Show more complicated and detailed interior views of engines cockpits dash boards drivers compartment of truck engineer's room in train or boat
ocated by et lights try roads	6. Show where machines are working in relation to environment.	6. Show sections of vehicles; front, back and side views.
r sections iews.	7. Represent increased action of vehicles and vehicle parts such as fire engine.	7. Show understanding of structure of vehicles through invention, imagination. racing cars aircraft motorcycles spacecraft speed boats trains
le who oper- les.	8. Draw people operating vehicles of many kinds.	8. Draw more varied types of vehicles and specific characteristics of people operating or using them.
vehicles.	9. Show front, back and side views.	9. Show close-up views.

WHAT CHILDREN CAN LEARN: MACHINES

GRADES 1 & 2

GR

The world of machines includes:

Machines that work for us

Outdoors
- constructing buildings
- building roads
- at harbors/boat landings
- on the farm
- in filling stations
- at launching sites
- in utility maintenance
  - installing lights/telephone poles/TV antennas
- fighting fires
- mowing lawns/trimming hedges/ removing snow

Indoors
- in factories/machine shops/ foundries
- in filling stations/car washes/ garages
- in airports/bus station/railway station
- in stores/shopping centers/bank
- shops: barber/beauty/shoe repair hospital/dentist's office/ doctor's office/clinic
- home: carpet sweeper/vacuum cleaner/egg beater/electric fan/washing machine
- school: typewriter/pencil sharpener/boiler room equipment/film projector

Machines that help us in our play

Parks
- merry-go-round/ferris wheel/ loop-the-loop/jungle gym/swing

Home
- erector set/mechanical toys/ model railroads/racing cars/ phonographs/ tape recorders

Imaginary Work
- a machine to take out the garbage/ walk the dog/wash the dishes/ clean my room/to practice piano for me

Play
- a machine to manufacture sweets when I want them/ to transport me to a make-believe place/ to fix anything I break

Children can learn to

1. Draw simple machines in use.
2. Differentiate relative sizes of machines.
   - vacuum larger than blender
   - typewriter larger than pencil sharpener
3. Show different kinds of machines in surroundings.
4. Show exterior views as well as interior working parts: x-ray views or cut away sections.
5. Show relationship of people who operate machines to the machines.
6. Exercise imagination and fantasy in creating 2-D and 3-D mechanical contrivances.

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2	GRADES 3 & 4	GRADES 5 & 6
	Continued motivations involving machines will help children grow in ability to:	In addition to earlier learnings, children should be able to:
in use.	1. Represent more varied kinds of machines with more complex working parts.	1. Represent increasingly varied and complex types of machines and what makes them work lawn mowers television sets computers telephones
f sizes of machines. blender han pencil sharpener	2. Represent different sizes of machines in a group on an assembly line in a garage in an office	2. Show increasing awareness of proportionate sizes of machines and relationships of part to part.
of machines in	3. Depict machines working or being used in a specific place.	3. Show more complex compositions, design, and 3-D structures working in an environment.
s well as interior views or cut away	4. Show increasing awareness of characteristic details and patterns of interior and exterior working parts.	4. Represent more complicated and detailed interior and exterior views indicating pattern and design created by more complex working parts.
people who operate nes.	5. Show people operating machines of many kinds.	5. Show more varied types of machines and specific characteristics of people operating or using them chef using a potato mixer hard hat construction worker using earth moving machine grandmother using egg beater
and fantasy in mechanical	6. Apply knowledge and observation of real machines to invention of imaginary, fanciful mechanical things.	6. Show increasingly imaginative and inventive solutions to art problems involving the world of machines. a view from inside a machine an imaginary design based on cogs, wheels, gears
	7. Represent front, back and side views of machines.	7. Show cross section, top, bottom views of mechanical things.